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MUSINGS FROM THE OIL PATCH

August 3, 2010

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Note: *Musings from the Oil Patch* reflects an eclectic collection of stories and analyses dealing with issues and developments within the energy industry that I feel have potentially significant implications for executives operating oilfield service companies. The newsletter currently anticipates a semi-monthly publishing schedule, but periodically the event and news flow may dictate a more frequent schedule. As always, I welcome your comments and observations. Allen Brooks

Is Natural Gas Heading For A Repeat Of 1980s And 1990s?

Sen. Reid pulled the rug out from under them with his legislative move

The battle over energy policy is heating up along with the weather. The move by Senate Majority Leader Harry Reid (D-NV) to dump the cap-and-trade approach for regulating carbon emissions that was part of an all-encompassing energy and climate bill in favor of a skinny energy-only measure has stirred up all sides in the energy debate. Just as Senators John Kerry (D-MA) and Joseph Lieberman (I-CT) were trying to round up votes for their energy and climate bill, Sen. Reid pulled the rug out from under them with his legislative move. He is structuring a bill with critical provisions that he knows can be passed in the September session in order to provide fodder for the populist demands for action on energy and especially actions against the evil oil industry with BP plc (BP-NYSE) as the number one target.

The bill will also include incentives for greater use of natural gas in heavy-duty trucks and electricity for cars

According to preliminary reports on the shape of the legislation, it will include eliminating the liability cap on oil companies under the Oil Pollution Act of 1990. It will also restrict some oil companies from getting offshore leases based on their safety records and their willingness to repay offshore royalties from the incomplete license agreements awarded in the late 1990s. The bill will also include incentives for greater use of natural gas in heavy-duty trucks and electricity for cars. There will also be funds to encourage greater land and water conservation and for increased energy efficiency in homes. There will be tax changes for energy companies and possibly some action steps to reduce greenhouse gas emissions by electric utilities. (This latter provision was dropped from the final bill proposed by Sen. Reid.)

It is the natural gas incentives that may draw significant scrutiny. On

That action contributed to the infamous “natural gas sausage” of supply that depressed gas prices, curtailed gas drilling and ultimately constrained gas production and oilfield activity

July 22nd, a coalition of manufacturing and agriculture organizations wrote to the majority leader urging him not to put incentives in the bill that would artificially increase the demand for natural gas in the power and transportation sectors. Upon learning about the letter, we were reminded of the efforts of petrochemical and pharmacy companies to lobby against the government easing restrictions on the use of natural gas as a boiler fuel for power plants in the late 1980s and 1990s. That action contributed to the infamous “natural gas sausage” of supply that depressed gas prices, curtailed gas drilling and ultimately constrained gas production and oilfield activity. Our reaction to the letter was, “Here we go again.”

The recent letter was signed by 67 agricultural and industrial energy consumers representing farm and food concerns and makers of chemicals, fertilizer, glass, paper and steel. Calling legislated incentives for increased use of natural gas in power generation and transportation as contrary to free markets the group points out that “...if a product is abundant and affordably priced and emits fewer greenhouse gases, the market will respond by increasing demand for the product.” Rather than the government picking “winners” and “losers” through policy decisions, the writers argue that “Our economy needs a diverse base of price-sensitive natural gas consumers, and a diverse energy supply, in order to help reduce price volatility in all energy sectors.”

Then, the issue was the fear that natural gas shortages would cripple the economy as critical U.S. industrial sectors would lack availability of the raw materials needed to keep it moving

While we agree with the letter’s premise, the authors fail to grasp the fact that this is an ideologically-driven administration and a Democratically-controlled Congress that relishes picking “winners” and “losers” in furtherance of its political agenda. This is in sharp contrast to the last time the natural gas industry was in the cross-hairs of government control. Then, the issue was the fear that natural gas shortages would cripple the economy as critical U.S. industrial sectors would lack availability of the raw materials needed to keep it moving. The problem was that politicians and bureaucrats lacked an understanding that their policy actions and regulation had created the imbalance between natural gas demand and supply and with reduced regulation the pendulum would rapidly correct assuring adequate supply at reasonable prices. It was this lack of understanding of market forces that contributed to the emergence of the “natural gas bubble” that grew so large and lasted so long that it evolved into the “natural gas sausage.” Before the sausage was eliminated, however, the gas industry and its support services were devastated by low activity due to low prices.

In its earliest days, the gas industry obtained its supply primary from coal and sold the gas as fuel within the municipality where it was manufactured

Since the mid-1800s, the natural gas industry has suffered under some form of regulation due to the unique economic power of the business. In its earliest days, the gas industry obtained its supply primary from coal and sold the gas as fuel within the municipality where it was manufactured. It was referred to as “town gas.” To protect against unfair power from the natural monopoly that developed in each locality, producers’ prices and returns were regulated. Eventually, the market for town gas expanded. Gas was sold and piped to neighboring communities taking it outside of the

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jurisdiction of municipal regulation. This led to various states establishing either a public utility or public service commission to oversee pricing and transactions in the developing intrastate gas markets. New York State was one of the earliest states to regulate its intrastate gas market when it created a public utility commission in 1907.

Eventually technology enabled gas to be transported longer distances and between states creating a new struggle over regulation. As various states attempted to become involved in regulation they ran into problems with the federal government and the Commerce Clause of the U.S. Constitution that precipitated a number of legal actions. As a result of these cases, in 1935 the Federal Trade Commission issued a report indicating its concern over these interstate pipelines and the fact that they were virtually entirely owned by only 11 public utility holding companies. This led to the Public Utility Holding Act of 1935 that regulated these companies. The problem was that the regulations did not extend to interstate natural gas sales. In 1938, the government passed the Natural Gas Act (NGA) that gave power to the Federal Power Commission (FPC), established in 1920 under the Federal Water Power Act, to regulate interstate gas pipeline rates and natural gas prices along with the certification of new pipelines.

The method of regulating gas prices was somewhat nebulous under the NGA. This lack of clarity culminated in the historic 1954 Supreme Court decision in the Phillips Petroleum case that mandated FPC regulation of wellhead gas prices based on a cost of service basis. In 1960, the FPC determined that it needed to regulate wellhead prices on a regional basis as the commission had been overwhelmed by the number of individual pricing decisions it was handling. But by 1970, the FPC had only established regional prices for two of the five national regions it had originally established. Prices for the other three regions essentially had been frozen at 1958 prices. By 1974, the FPC recognized that area-wide pricing wasn't working so they went to a national price established on a cost-of-service methodology. The price of gas at the wellhead was raised to \$0.42 per thousand cubic feet (Mcf), double the previous price, but still well below the market value of the gas.

By having kept natural gas prices artificially low, drilling for gas for sale in the interstate market was depressed. But because intrastate gas markets were not regulated, the bulk of the industry's focus shifted to these markets. In 1965, a third of the nation's proved natural gas reserves were earmarked for intrastate markets. That share increased to almost half by 1975.

In 1976 and 1977, severe cold weather led to forced curtailment of gas supplies to the Midwest forcing schools and manufacturing plants to shut down. At the same time, there were no shortages experienced in states with large and active intrastate natural gas markets. The shortage of supplies in the interstate market raised concerns among industries that needed gas to operate. The

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existence of sufficient and readily available gas supplies in large natural gas producing states such as Texas, Louisiana and Oklahoma, drove many industrial companies to relocate or to shift some of their manufacturing to plants in these states. While gas was available, it was not necessarily cheap, but for businesses, supply trumped cost. In the mid 1970s, natural gas prices in the Texas intrastate gas market were often in the \$7-\$8 per Mcf.

To remedy this market imbalance, in November 1978, at the peak of the gas shortage, Congress passed the Natural Gas Policy Act (NGPA) that accompanied the National Energy Act. The FPC was abolished and the Federal Energy Regulatory Commission (FERC) was established with power to regulate pipelines and break down the barriers between intrastate and interstate pipeline markets. Gas prices were still regulated, but the government created various classes of production with significantly higher prices reflecting the increased cost of finding and developing new gas supplies. While pre-NGPA gas supplies were locked into historic prices, there were plenty of incentives to stimulate gas drilling. At the same time, the allowance of higher wellhead gas prices and the loosening of pipeline regulations planted the seeds of the industry's next crisis – the collapse in demand.

Pipelines that were free to compete for transportation volumes and able to bid for gas supplies decided to sign up long-term supply contracts at high prices and with "take-or-pay" terms. The memory of the challenges of supply shortages in the face of strong demand growth driven by low gas prices haunted pipeline company managers. Being without gas supply was considered a greater risk than having a little too much gas supply. But as the economy entered the 1980s it was hurt by the recession of 1981-1982. The high-priced gas that pipelines were delivering to their industrial customers contributed to the huge drop in demand. This put the pipelines in the box of having to buy high-priced contracted gas supplies when cheaper supplies were readily available in the marketplace. Because of high-priced gas, numerous industrial and utility customers switched to cheaper alternatives. The gas pricing challenge motivated some interstate pipelines to create Special Marketing Programs (SMPs) allowing customers to buy gas directly from producers with the pipeline company only transporting the volumes. Of course, these SMPs further hampered the pipeline take-or-pay problems and further undercut the pipelines' economics. Before long, virtually every interstate pipeline company was facing potential bankruptcy under the weight of its "take-or-pay" obligations.

The SMPs were found to be discriminatory in several 1985 court cases and hastened the government's move to deregulate the pipeline and gas businesses. The continued low natural gas prices as a result of reduced demand and greater gas resources due to stepped up drilling forced the pipelines and gas producers to seek resolution of the massive take-or-pay obligations. All of these issues culminated in a ruling by FERC – Order No. 436. That order made transportation the primary function of the pipelines rather than the

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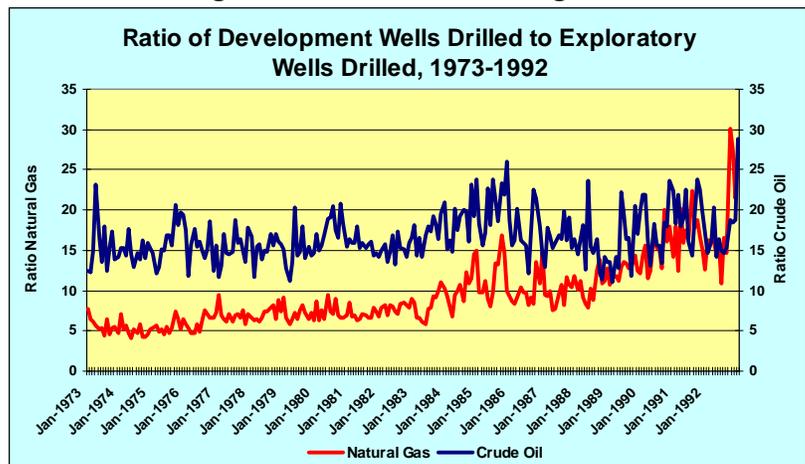
From about a 5:1 ratio in 1973, the ratio moved to about 17-18 in the early 1990s

traditional bundled merchant service role of the past (rolling the cost of natural gas and its transportation into one charge). With this shift, a wide variety of gas purchasing and transportation arrangements evolved. One development was “netback” pricing in which the final gas service price was established at the consuming end and the transportation charge backed out leaving a net price for the natural gas at the wellhead.

While Order 436 helped change the industry, not all the take-or-pay obligation issues were resolved. This led to Order 500 that forced the pipelines to buy out those obligations with the right to pass some of the cost through to transportation customers in order to attempt to preserve the financial stability of the pipelines. It was not until the passage of the Natural Gas Wellhead Decontrol Act of 1989 that gas prices were totally deregulated after more than a century of control. There was a transition phase incorporated in that legislation that delayed complete gas price decontrol until January 1, 1993. As this process was moving forward, FERC issued Order No. 636 in 1992 that eliminated the ability of pipelines to provide any gas bundling services. It forced the producing arms of interstate pipeline companies to have to transact business on an arms-length basis. The net result of this order was to place all gas sellers on the same footing and all pipelines in the transportation-only business. Decontrol of the natural gas industry finally was complete.

Over this historical period, each time regulated natural gas prices were raised, there was an increase in gas drilling and production. This is clearly seen in the change in the ratio of development wells drilled to natural gas exploratory wells drilled over the period. From about a 5:1 ratio in 1973, the ratio moved to about 17-18 in the early 1990s. In contrast, the ratio of crude oil development to exploratory wells moved from about 15 to 18 over the same period. These divergent trends suggest that higher natural gas prices did achieve the desired effect of increasing gas drilling, reserves and production.

Exhibit 1. Drilling Of Gas Increased With Higher Prices

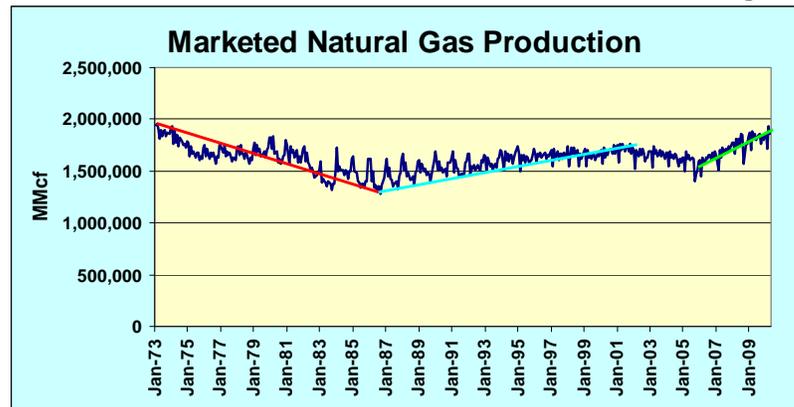


Source: EIA, PPHB

The rise in gas production was facilitated in this period by the growing success of gas shale drilling

When we look at marketed natural gas volumes since 1973 there was a general decline in the early period until the mid 1980s. Looking at this period more closely, however, the decline in marketed gas volumes that began in the 1970s ended about mid-decade in the 1980s before growing in the latter years of that decade. (This can be seen by examining the red line in Exhibit 2.) What is clear is the impact of the early 1980s recession on natural gas demand. Between 1975 and 1980 marketed gas production was stable or rising before starting a sharp downward move coinciding with the recession. The gas production decline finally ended about 1986. In response to the higher natural gas prices allowed and the interstate pipeline decontrol steps, marketed gas volumes began a steady climb until the turn of the century when demand was undercut by the economic recession following the 9/11 attacks. (This trend is marked by the blue line in Exhibit 2.) For the next few years, high gas prices and a weak economy depressed gas volumes. What then becomes clear is that gas production rose beginning in 2005 in response to the economic recovery, the substitution of natural gas for coal under increased environmental pressure and low gas prices. The rise in gas production was facilitated in this period by the growing success of gas shale drilling.

Exhibit 2. Gas Demand Has Vacillated But Now All-time High

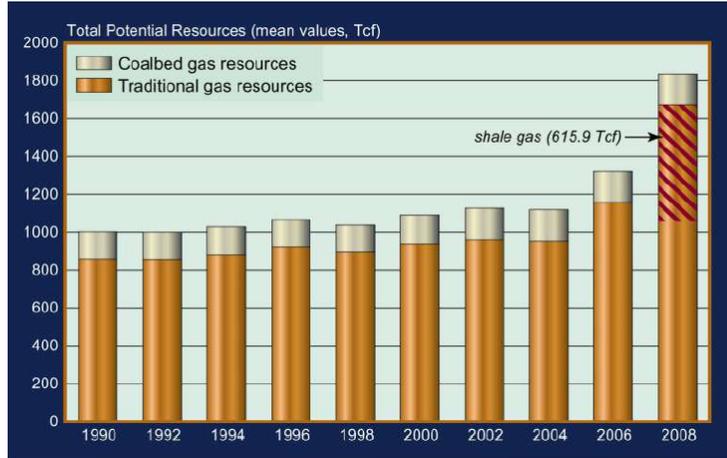


Source: EIA, PPHB

This time the shortage fear argument has been flipped to argue that government incentives to boost natural gas consumption in the utility and transportation sectors of the economy will unduly lift gas prices

As we commented at the start of this article, we have seen industrial and agricultural groups (primarily fertilizer companies) in the past rail against governmental efforts to allow natural gas to be sold for use in fueling electric power plants. These industrial consumers feared that natural gas would be consumed in low-value uses and not available for their companies. Rather, these objectors wanted gas usage to be restricted and the supplies retained for high-value applications such as in pharmaceuticals and petrochemicals. This time the shortage fear argument has been flipped to argue that government incentives to boost natural gas consumption in the utility and transportation sectors of the economy will unduly lift gas prices and penalize those industrial and agricultural companies who are heavily dependent on the resource as either a feedstock for their product or as fuel in their manufacturing processes.

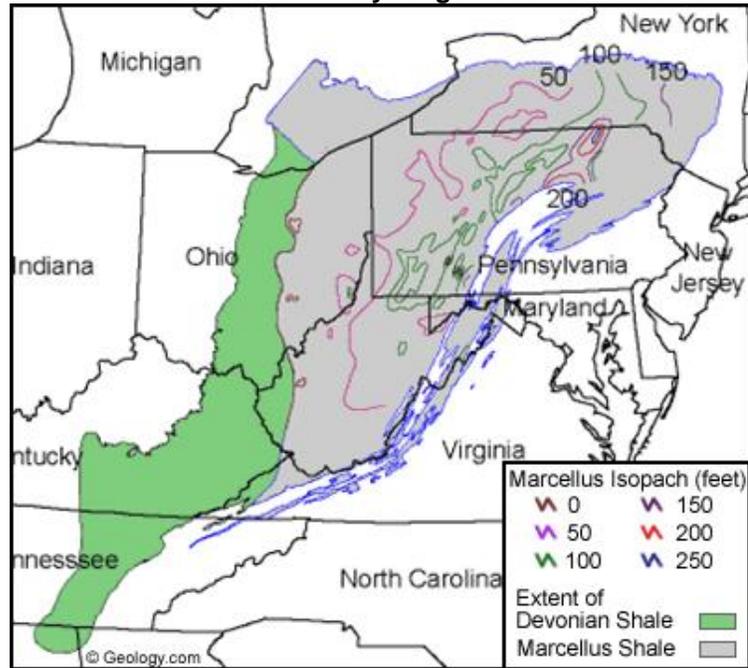
Exhibit 4. Gas Reserve Growth From Gas Shales



Source: Potential Gas Committee, AGA

Western Pennsylvania, West Virginia and part of the eastern half of Ohio could contain as much as 500 Tcf of gas reserves, or nearly 80% of the estimate for all gas shales by the Potential Gas Committee at the end of 2008.

Exhibit 5. Marcellus Is A Very Large Resource Base



Source: Geology.com modeled after USGS map

The government should not be in the business of picking “winners” and “losers”

We are in agreement with one point the agricultural and industrial letter-writers made, which is that the government should not be in the business of picking “winners” and “losers” by instituting mandates and/or incentives. Instead, we should let the free market work. On the other hand, we caution that the basic premise upon

The idea that the United States is awash in gas supplies due to the success of gas shales may prove equally short-sighted

which the incentives are based may prove wrong just as corporate America was wrong about gas shortages impacting its businesses in the late 1980s and 1990s. The idea that the United States is awash in gas supplies due to the success of gas shales may prove equally short-sighted. Having the resource available is one thing. Having the resource available at an affordable price may be something entirely different. There are serious reservations about views that gas shales are profitable at gas prices of \$4.50 - \$5.00 per Mcf. Revamping a significant sector of our economy to be fueled only by natural gas based on potentially flawed assumptions could prove devastating for Americans in the future.

Rhode Island to Houston – Blowout At Three MPH!

The amazing thing about the June heat wave in Rhode Island is that the temperatures failed to break historical records in the area established in the 1970s

After spending two months at our second home in Rhode Island we began our journey back to Houston in mid-July. Some of you might wonder why we would want to return to the heat and humidity of Houston, but the demands of business in Houston and Calgary are the reason. Of course we avoided the 100+ degree temperatures that hit Rhode Island two weeks ago and made our relocation decision look good. We did, however, experience triple digit temperatures in June. The amazing thing about the June heat wave in Rhode Island is that the temperatures failed to break historical records in the area established in the 1970s, and that was when climatologists warned us about global cooling. Go figure.

For this journey home we decided to allow more time and to drive a slightly different route. For readers of the Musings, that means I don't have the same knowledge base to compare measures like truck and RV traffic or activity levels at Cracker Barrel restaurants we frequented along the way. But our travels did shed light on other economic trends while enabling us to see some new, and revisit some old, sights during the journey.

While our drive started out on a Saturday morning, road traffic was surprisingly light

When we set out, our initial goal was to drive from our house in southwest Rhode Island to Front Royal, Virginia, at the head of the Skyline Drive. This time, instead of heading across Connecticut from Rhode Island and then into New York on our way to Pennsylvania, we took the coastal route. That took us down I-95 through the major coastal cities of Connecticut – New Haven, Bridgeport and Stamford – on our way into West Chester County, New York where we then cut across to the Tappan Zee Bridge taking us across the Hudson River. While our drive started out on a Saturday morning, road traffic was surprisingly light. Maybe people weren't heading off on vacation or to their second homes, but we certainly didn't encounter as many vehicles as we expected. There also were fewer trucks than we expected.

From the Tappan Zee Bridge we ventured through a little of New Jersey on our way into Pennsylvania. We stopped at the Pennsylvania welcome center only to find signs plastered on the front doors telling us that the highway was shut down ahead and that

We saw more of the country, i.e., farms, than we might have otherwise

we needed to detour. Frustrated at the prospect of having to travel on back roads when we were trying to make time in getting to our destination, we inquired about the detour. According to the lady behind the counter, it seemed that a tractor-trailer had crashed spreading debris across all lanes of traffic and the center median. As a result, the state police had closed the highway in both directions beginning at 9:30 am that morning, when this was shortly after noon. The traffic cameras monitoring the accident clean up scene showed that eastbound traffic was just beginning to be allowed to pass, but westbound traffic was still stopped. We gladly headed for the detour armed with our paper with directions.

It turned out that the westbound highway being used for the detour was merely an earlier version of the interstate we planned to drive, so the traveling wasn't too bad, although we couldn't drive quite as fast. On the other hand, we saw more of the country, i.e., farms, than we might have otherwise. Once around the accident we were back on the interstate highway heading to Harrisburg, Pennsylvania before heading south on I-81 through Maryland, West Virginia and into Virginia.

The problem we and the bike riders encountered was the restaurant was overwhelmed by such a large number of people arriving at once to eat

We arrived at our hotel in Front Royal with plenty of time to settle in, check our emails and then head out to dinner. Following a recommendation from the hotel staff, we ventured off to a local restaurant in the heart of downtown Front Royal. When we had checked in to our hotel there were a number of motorcycle riders also checking in. When we arrived at the restaurant we encountered more motorcycle riders and overheard their conversations about the fact there was a huge rendezvous of bike riders. The problem we and the bike riders encountered was the restaurant was overwhelmed by such a large number of people arriving at once to eat, so things were a little chaotic – but certainly not a serious problem. We suspect the situation may have created more concern among the bike riders who were going to be spending some time in the area.

Because many of the locals had trouble telling their left from their right, the frustrated drill instructor resorted to yelling at them to “front the Royal Oak”

The town of Front Royal was incorporated in 1788 and figured in both the Revolutionary and Civil Wars. Interestingly, we learned that the town was named during the Revolutionary War when the militia, made up of raw local recruits was being trained. On the town green where the militia was practicing its drilling there was a huge Royal Oak tree. Because many of the locals had trouble telling their left from their right, the frustrated drill instructor resorted to yelling at them to “front the Royal Oak.” Eventually the phrase was shortened to Front Royal. According to Wikipedia there are other explanations for the naming of the town, but the version we related was published in all the local tourist material.

The next day we started driving south on the Skyline Drive until we had had enough of twisting and winding two-lane roads. While there was some traffic, given that it was the middle of the summer vacation period we were surprised the highway wasn't more congested. We dropped down from the mountains to some local

The Blue Ridge Parkway pioneered many highway design and construction techniques

roads in the Shenandoah Valley and headed over to I-81 and then south to Staunton, Virginia, the birthplace of Woodrow Wilson. From there we cut back to the Blue Ridge Parkway, one of this nation's first major highways as we learned when we visited a cultural and craft center the next day. The Blue Ridge Parkway, according to the exhibit, pioneered many highway design and construction techniques later employed in the construction of the nation's highway system during the 1930s to 1950s.

We kept noticing as we drove along, however, that there were a large number of farms for sale

We followed the Blue Ridge Parkway south until we needed to get off to make up some time in order to get to Asheville, North Carolina, at a reasonable hour. The local roads we traveled seemed to be not a lot different from the Blue Ridge Parkway, except the views weren't as nice. We kept noticing as we drove along, however, that there were a large number of farms for sale. Whether the number was out of the ordinary or not was impossible to know, and in addition we have no idea why they were for sale. To a non-farmer they all looked well kept and vibrant, but then again agricultural economics often doesn't bear any relationship to prosperous or broken-down looking farms.

The two towns had very different feels, but seemed to be suffering from the same fate – overbuilding!

The next morning was raining so we killed the idea of visiting the Biltmore Estate, electing to save that for a later trip. We ventured back onto the Blue Ridge Parkway to the crafts center where we learned about the highway construction firsts before heading back south to Cherokee, North Carolina, and the Great Smoky Mountain National Park. It had been at least 25 years since we last visited Cherokee, and the place has certainly grown, but much of it looks like it has never been modernized since our last visit. From there we headed west to Nashville, Tennessee for the night.

On the drive across Tennessee we passed through two amazing towns – Gatlinburg and Pigeon Forge. We had heard about both of them as vacation destinations, but we were overwhelmed by the number of people in Gatlinburg and the size and congestion of Pigeon Forge – the home of Dolly Parton's Dollywood amusement facility. The two towns had very different feels, but seemed to be suffering from the same fate – overbuilding! When we discussed the crowds in light of the large number of hotel vacancy signs, my wife informed me that based on discussions she had had with others on a vacation rental website, both of these towns were way overbuilt. The economy has clearly taken a toll on rental properties.

Pigeon Forge appeared to be a miniature Las Vegas as it started out as a small town but swelled as one entertainer, hotel and restaurant chain after another seized on the attractiveness of the area

Gatlinburg appeared to be the smaller of the two towns, largely we believe due to it being nestled along a river and at the base of a mountain. While driving through the town, we had the sensation we were driving through Banff in the Canadian Rockies. Pigeon Forge, on the other hand, appeared to be a miniature Las Vegas in that it seems as if it started out as a small town but swelled as one entertainer, hotel and restaurant chain after another seized on the attractiveness of the area as a vacation destination and rushed to capitalize. To understand what a vacation destination it is, note that the town is bracketed by Cracker Barrel restaurants at each end!

It was a highway bridge with six lanes – five heading in and one heading out!

As we drove out of Pigeon Forge in the late afternoon traffic, we encountered a section of highway that could only have been designed by the town's tourist council. It was a highway bridge with six lanes – five heading in and one heading out! It made us think of the infamous roach motel jokes – you can't check out!

We went for miles at a time without seeing any traffic, and that that we did see was heading north

From Nashville we headed south the next day on the Natchez Trace – a historical parkway in the true sense of the term that takes from you Western Tennessee to Natchez, Mississippi. The Natchez Trace is a beautiful road, albeit only two lanes wide, but with numerous nature and history turnoff points. The Trace parallels other state highways that traverse various commercial centers, but we were still surprised there was virtually no traffic heading south. We went for miles at a time without seeing any traffic, and that that we did see was heading north. The other surprise was that all the farms along the way were growing cotton or corn/maize and raising hay. But for all the rolls of hay ringing the fields, we only saw one herd of cows. Maybe all the farmers raise hay as a commercial crop, we don't know.

A tire on the luggage cart had blown out, but fortunately I was only going about three miles per hour so I could recover!

In Natchez, we drove through town with its many historical buildings and magnificent antebellum homes to our hotel. There was a women's group meeting that had the hotel pretty full. The most amazing experience was pushing our loaded luggage cart through the lobby at walking speed when there was a loud bang scaring a number of hotel guests, staff members and ourselves. A tire on the luggage cart had blown out, but fortunately I was only going about three miles per hour so I could recover! That night we had a very nice dinner at a local restaurant down on the river near the Isle of Capri riverboat casino. It had a nice view of the river and seemed to have a pretty good crowd, but it had been there for 21 years and was highly recommended by the hotel staff. Traffic going to the casino didn't appear that heavy, but it was hard to tell because all the parking was offsite with casino shuttles at work.

Is the fact we never had to wait in line for a seat in the restaurants a sign about the health of the economy?

From Natchez it was homeward bound. Once again we were surprised by the lightness of the traffic. Could the oil spill have been part of the explanation, or was it a sign of weak economic activity? We aren't sure. Throughout the trip, whenever we stopped at restaurants either along the highway or in towns, except for the Front Royal experience none of them were crowded. Is the fact we never had to wait in line for a seat in the restaurants a sign about the health of the economy? Or was it that our route put us out of the mainstream of traffic? Based on the latest batch of economic statistics, we have to think it was more the economy than the route. That impression was supported by the latest American Petroleum Institute data showing that gasoline consumption last month was the lowest June since 2004 and that for the first six months of 2010, gasoline usage was down 0.6% from 2009. Continued high unemployment suggests continued sluggish energy demand, even withstanding the current heat-related power consumption surge.

At the end of August we will be returning to Rhode Island and we will

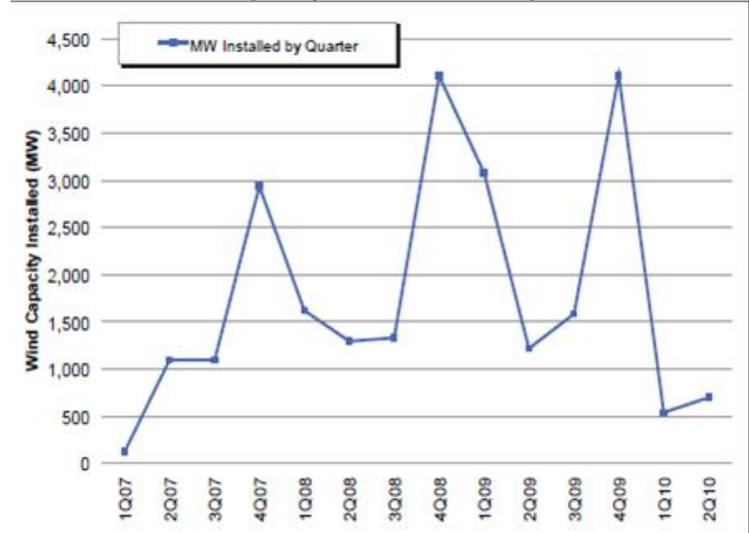
be very curious to see if we experience similar traffic and crowd conditions. We'll let you know.

Wind Energy Shows Need For Government Help

The installed capacity was down by 57% and 71% from the second quarter of 2008 and 2009, respectively

The American Wind Energy Association (AWEA) reported that the industry only installed 700 megawatts (MW) of new capacity during the second quarter. The installed capacity was down by 57% and 71% from the second quarter of 2008 and 2009, respectively. With the wind industry only having installed 539 MW of capacity in the first quarter, the first half total installed capacity of 1,239 MW was easily surpassed by the coal and natural gas fired generating capacity additions that each installed over 2,000 MW. This marks the first time in five years that coal has surpassed wind in new installed capacity.

Exhibit 6. Wind Capacity Additions Collapsed In 2010



Source: AWEA

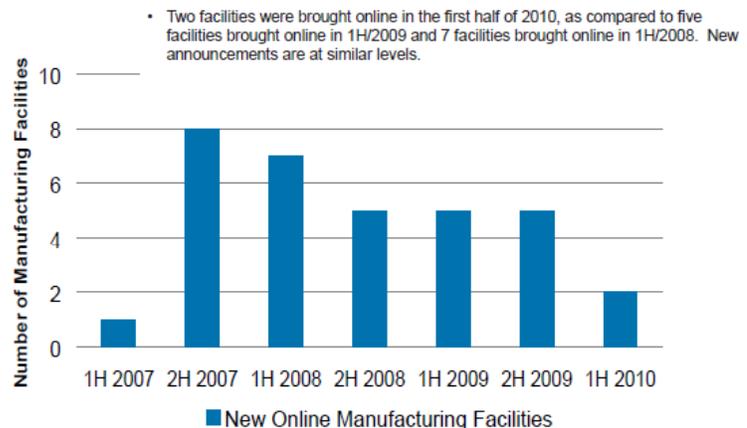
The drivers for building more wind power are not present, i.e., government funding and mandates, so that after this pipeline of new construction is completed, the wind industry will be devastated

Despite the low first half installed capacity, the wind industry is still getting help from the American Recovery & Reinvestment Act (aka The Stimulus Bill) as 5,500 MW of new wind capacity is under construction and will qualify for government financial assistance. The problem as foreseen by the AWEA is that the drivers for building more wind power are not present, i.e., government funding and mandates, so that after this pipeline of new construction is completed, the wind industry will be devastated. The drop in electricity demand, lower natural gas prices, competitive coal prices and the lack of a national renewable energy policy is keeping companies from securing power purchase agreements to fund new wind projects. As the volatile chart pattern in Exhibit 6 demonstrates, without government subsidies the wind power business falters. For that reason, the AWEA has been on an aggressive campaign to convince Congress to enact a national

The AWEA has been disheartened by the decision of the Senate Democratic leadership not to include a RES in the energy and climate bill it is preparing to debate

renewable energy standard (RES) that would drive new wind projects by forcing utilities to have to purchase a certain amount of clean energy. The AWEA has been disheartened by the decision of the Senate Democratic leadership not to include a RES in the energy and climate bill it is preparing to debate. House members have vowed to add many of the popular provisions contained in their energy bill to the anticipated conference committee bill once the Senate approves its energy legislation. Will a RES be one of those provisions added? We expect so.

Exhibit 7. Falling New Capacity Due To Weak Economics



Source: AWEA

The big question is whether wind will be a winner following enactment of an energy and climate bill or the victim of demands by Americans for government austerity

The prospect of a declining wind market has discouraged equipment suppliers from opening new manufacturing facilities. As the AWEA reported only two new facilities were brought on line in the first half of 2010, down sharply from the five added in 2009's first half and the seven in 2008. Even with the potential for a national RES to be mandated, suppliers are not jumping to construct new wind equipment manufacturing facilities yet. Current market conditions and the delayed timing for any positive RES legislation action dictate that 2011 will likely be a worse year for new wind capacity additions than 2010. The big question is whether wind will be a winner following enactment of an energy and climate bill or the victim of demands by Americans for government austerity.

Electric Vehicles And The Challenges They Face

Beginning in August reservation holders can confirm orders

Last week Nissan Motors (NSANY.PK) informed the 17,000 people holding reservations for the all-electric Leaf car how they can complete their order and when it might be delivered. Beginning in August reservation holders can confirm orders. For those buyers in California, Washington, Oregon, Arizona and Tennessee, they will begin receiving their vehicles in December. The selection of these states ties in with the partnership between Nissan and ECOtality, an electric charging infrastructure provider, which is partially funded by a grant from the U.S. Department of Energy. These five states

account for more than 55% of Nissan's outstanding Leaf reservations, which is not surprising as these states have the most advanced electric vehicle (EV) charging infrastructures. The Nissan delivery schedule goes on with buyers in Texas and Hawaii getting their Leafs in January 2011. Buyers in North Carolina, Florida, Georgia, Washington, D.C., Virginia, Maryland, South Carolina and Alabama will have to wait until April 2011 for their cars. By the fall of next year buyers residing in the remaining states will be able to buy Leafs.

So, if it weren't for American taxpayers, the car buyers would be paying a "real" price that may or may not reflect the "real" cost of the Leaf because battery costs still remain very high

We watched a video of *Automotive News'* West Coast editor driving an early version of the Leaf. We enjoyed two of his comments. The first was his description that the Leaf felt like a "real" car. I guess he thought he was going to be driving a golf cart. The other statement was when he talked about the car's price - \$32,780, but said that wasn't the "real" price. Because the Leaf is eligible for a \$7,500 federal government subsidy under the Clean Energy and Security Act of 2009, the net purchase cost will be \$25,280 before the application of any state subsidies such as the \$5,000 per vehicle in California and Georgia or the \$1,500 in Oregon. So, if it weren't for American taxpayers, the car buyers would be paying a "real" price that may or may not reflect the "real" cost of the Leaf because battery costs still remain very high.

One thing Volt buyers may not know is that this extender engine requires premium gasoline and the car only has room for four passengers

The major domestic EV competitor to the Leaf will be Chevy's Volt that GM announced last week will retail for \$41,000 before any federal and/or state tax credits. While priced much higher than the all-electric Leaf, the Volt has an extender gasoline engine that enables the car to go up to an additional 300 miles beyond the 40 miles it can travel on its battery charge as opposed to the 100 miles for the Leaf. One thing Volt buyers may not know is that this extender engine requires premium gasoline and the car only has room for four passengers as the battery pack runs through the center of the car eliminating the bench seat in the rear.

The big question is whether GM's assumption about the Volt's residual value at the end of the lease term will prove correct

While surprising many automobile industry experts with such a high price, GM is focusing on marketing the Volt with an attractive lease financing plan. A buyer can lease a Volt for an upfront payment of \$2,500 at the time of lease signing and \$350 per month payments for 36 months compared to Leaf's \$1,999 signing payment and \$349 per month terms. The big question is whether GM's assumption about the Volt's residual value at the end of the lease term will prove correct. The estimate of the residual value will influence the lease financing terms.

If we look at the Volt economics, the buyer will spend a total of \$15,100 over the three year lease term. If we assume that the lease financing costs GM \$1,000 per year, or \$3,000 over the entire lease term, then the company has gotten a total of \$12,100. The difference between the purchase price and the cash received is \$28,900, or 70.5%. To see how this might compare, we decided to examine the pricing of the 2007 Toyota Prius. It had a suggested retail price of \$23,070 to \$22,175 for the two models sold that year,

Given the technical success, the customer acceptance and the long history of the Prius, one has to question whether the Volt will have such a high value at the end of its lease term

or an average price of \$22,623. High gasoline prices at that time meant that the Prius was not discounted by dealers. Today, the car's trade-in value as reported on MotorTrend.com is \$13,500. That means the trade-in value is 59.7% of the average suggested retail price. Given the technical success, the customer acceptance and the long history of the Prius, one has to question whether the Volt will have such a high value at the end of its lease term. If it doesn't have a high residual value, then GM will be taking a financial hit on the car at the end of its lease. Because the financial hit will be recorded in the car company's finance unit, the automobile manufacturing unit's profitability will look just fine.

There are a couple of technical factors that may help the Volt's residual value under the lease terms. The buyer is limited to only 12,000 miles per year, or 36,000 miles total over the three years. Since the battery guarantee is eight years and 100,000 miles, at the end of the lease the Volt will have a substantial amount of its guarantee remaining.

Of course, with a limitation of 12,000 miles per year, or 33 miles per day and a 40-mile per battery charge limit, buyers may wonder why they are spending extra for the extender engine they may never use. This could become an issue after buyers find they can only carry four passengers. Another problem is the Volt weighs 3,900 pounds or 30% more than the Leaf and 70% more than the Mitsubishi (MBI.F) MiEV, which will cut into battery performance.

Does Government Motors know something about what car models will be allowed for consumers by the federal government in the future?

As a taxpayer/shareholder of GM I am concerned about the company's Volt marketing strategy. It reminds us of the federal government's housing strategy earlier this decade – get American families into a house at whatever price but as long as they have a low monthly payment because the future (rising incomes and house values) will bail them out. That plan didn't work out too well for the country. But then again, does Government Motors know something about what car models will be allowed for consumers by the federal government in the future? As John Gartner, a senior analyst at Pike Research, a clean energy research company put it, "The Obama administration is making a concerted effort to prevent the failure of the US auto industry, and that will bolster development of the US battery industry through 2012. But political shifts and market realities could remove that safety net."

In mid-July the White house trumpeted a report issued by the Department of Energy titled The Recovery Act: Transforming America's Transportation: Sector Batteries and Electric Vehicles. The 8-page report has lots of projections about favorable trends in battery performance and costs. The problem with this report, as pointed out by John Petersen, a lawyer in Switzerland who focuses on clean energy and battery technology their stocks, is that it was actually a political document sporting the DOE banner. It is not even listed on the DOE web site. Moreover, when one reviews the information in the 380-page DOE technical report issued last January, 2009 Annual Progress Report on Energy Storage

We believe the government's long-term strategy for the automobile industry is to restrict models other than those fueled by alternative fuels

Research and Development, there are few signs of progress in battery technology that would support the optimistic projections in the White House document.

Based, however, on the Obama administration's embrace of EVs and its willingness to throw money at new battery plants, we believe the government's long-term strategy for the automobile industry is to restrict models other than those fueled by alternative fuels. What will that mean for future oil demand growth or contraction? What does it mean for natural gas, coal and nuclear since electricity certainly will play a greater role in the transportation market? All of these questions, given the interaction of politics in their evolution, make for an interesting, challenging and frustrating time to be in the energy business.

Rhode Island Wind Energy Project Draws Legal Attack

Just as the Deepwater Wind 8-turbine wind farm demonstration project off the coast of Block Island was entering its final lap for approval, a new intervener arrived. A new legal challenge to the Public Utilities Commission (PUC) review process seeking to approve the revised power purchase agreement (PPA) between Deepwater Wind and National Grid (NGG-NYSE) was raised by TransCanada Power, a subsidiary of TransCanada Corp. (TRP-NYSE), a Canadian pipeline and energy company with U.S. operations in Massachusetts. TransCanada Power is building the 44-turbine Kibby Wind Farm in Maine's Boundary Mountains near Quebec. Half the turbines are already installed in the \$300 million project with the balance of them to be placed on site this fall.

TransCanada Power is offering to supply power to Rhode Island through the New England ISO grid at under 11-cents per kilowatt-hour

Importantly, TransCanada Power is offering to supply power to Rhode Island through the New England ISO grid at under 11-cents per kilowatt-hour (kWh). That is less than half the recently negotiated National Grid PPA with Deepwater Wind which calls for a rate of 24.4-cents/kWh starting in 2013, the first year of operation, under a 20-year contract that escalates the price by 3.5% per year, each year.

TransCanada Power claims that the Rhode Island law governing renewable-power contracts violates the Commerce Clause of the U.S. Constitution because it favors in-state projects. This is the same Commerce Clause being used to justify the federal government mandate for purchasing health insurance because even not buying a policy impacts the national health insurance market and thus interstate commerce.

The new law also is being challenged by Rhode Island's Attorney General and the local chapter of the Constitutional Law Foundation

Besides the TransCanada Power claim, the new law dictating the required process the PUC must follow in evaluating renewable power PPAs also is being challenged by Rhode Island's Attorney General and the local chapter of the Constitutional Law Foundation, both previously supporters of the wind project. Their claims are that the new law is a 'special interest' law written to circumvent the PUC

The view that offshore wind energy will become a growth industry for economically-distressed Rhode Island

The Deepwater Wind project will employ about 50 temporary workers and add only six permanent jobs to the state's employment roll, while costing Rhode Island electricity consumers an extra \$390 million in above-market power costs

approval process. The new law enacted by the state's legislature and signed by the governor following the PUC's rejection of the previous PPA, states that the regulatory body must approve the PPA if it is determined that the project is "commercially reasonable for a small offshore wind-demonstration project that is limited to eight wind turbines, even if there may be other energy alternatives in the region that could produce electricity at a lower unit cost." That mandate, coupled with the requirement for the PUC to consider testimony from the state's economic development agency of the long-term economic benefits to the state from the project makes it hard to see how the PUC will rule against the National Grid PPA. Regardless, the PUC has elected not to rule on any of these objections until August 11th when it is supposed to render its verdict on the PPA under the new PUC renewable fuels evaluation timetable.

The greatest hurdle for these objections is the view that offshore wind energy will become a growth industry for economically-distressed Rhode Island, since the economic benefits, i.e., job creation, is an important criteria. The Rhode Island renewable energy standard legislation was written with the dual aim of promoting environmental benefits along with job creation in the renewable energy sector. The cost of renewable energy was a secondary consideration, because the assumption is it will be cheap, although the PPA dissuades that view.

Rhode Island Governor Donald L. Carcieri (R) said after he signed into law the new PUC bill, "This project holds the key to Rhode Island's economic future, serving as the catalyst for a multi-billion dollar industry that will create thousands of good paying jobs in this region and position Rhode Island as the Silicon Valley of Renewable Energy." While this is an admirable goal, the Deepwater Wind project, based on the developer's testimony before the PUC, will employ about 50 temporary workers and add only six permanent jobs to the state's employment roll, while costing Rhode Island electricity consumers an extra \$390 million in above-market power costs over the life of the contract. The inconvenient truth of the cost of renewable energy and especially offshore wind energy keeps disrupting the development of these ideal projects.

Energy Legislation And The Cost Of Cap-And-Trade

The Senate is about to debate an energy and climate bill known as The Clean Energy Jobs and Oil Accountability Act of 2010. This bill was created by Senate Majority Leader Harry Reid (D-NV) after he concluded there were not sufficient votes to override a possible Republican veto of the Kerry-Lieberman energy bill. Not only did Sen. Reid ditch the previous bill, but he also determined that his alternative bill would not include the cap-and-trade system for regulating carbon emissions so desperately desired by environmentalists. What we have read, however, are statements from some key members of the House of Representatives that they

plan to add the cap-and-trade plan back into the final legislation to be melded from the respective chamber's energy bills.

There is one key determinant in the structure of the Senate bill as the House energy bill was passed months ago. That determinant is the need for Sen. Reid to have an energy and climate bill with popular actions that can be passed before the election. That will enable those senators up for re-election this fall to campaign on their positive vote. Since the legislative calendar provides little time for action before the November vote, and is further compounded by the filibuster position of the Republicans in the Senate, the bill cannot contain any highly contentious issues. Therefore, this bill deals with the oil industry and specifically BP plc (BP-NYSE), punishing both in response to the public's outrage over the Gulf of Mexico oil spill. There are provisions boosting natural gas for trucks and electric cars, full funding for the Land and Water Conservation Fund for the next five years, and money for home efficiency improvements that will create green jobs.

While understanding the legislative strategy of Sen. Reid, we wonder what impact a cap-and-trade enhanced energy bill might have on the economy. Well, fortunately, just as Sen. Reid was pulling the Kerry-Lieberman bill off the table, the Energy Information Agency (EIA) released its analysis of the American Power Act of 2010 (APA) in response to the request from the two senators to assess the bill's economic impact. The news was not particularly encouraging and has been attacked by proponents of cap-and-trade.

The conclusion from the study is that over the next 25 years the climate change, i.e., cap-and-trade, proposals in the bill would retard U.S. economic growth and reduce jobs

The EIA's report focuses on the impact that the policy proposals contained in the APA would have on the decisions of consumers and energy producers and what the implications are for the overall economy. The EIA created a number of cases based on various assumptions and compares the results against the government's base case forecast. The conclusion from the study is that over the next 25 years the climate change, i.e., cap-and-trade, proposals in the bill would retard U.S. economic growth and reduce jobs. Additionally, the pollution control mechanism would fail to reduce emissions as much as desired with the reduction targets being met largely through the purchase of offsets. The bottom line is that the APA with its cap-and-trade system will hurt the economy rather than help it meet the goals of reducing oil imports, grow the economy and jobs and lower carbon emissions.

The EIA's model calls for average annual gross domestic product (GDP) growth of 2.4% between 2008 and 2035

The principle criticism of the analysis lies with the economic growth assumptions. The EIA's model calls for average annual gross domestic product (GDP) growth of 2.4% between 2008 and 2035. The critics say that since GDP growth over the last 30 years averaged 5.9% and the growth rate since 1930 has averaged 6.0%, they find it hard to believe the future growth rate will be so low. While this is an economic debate, most economists acknowledge that the future U.S. economy will not grow at anywhere close to its historical growth rate due to demographic changes and structural problems. Our rebuttal would be, as long as we are comparing all

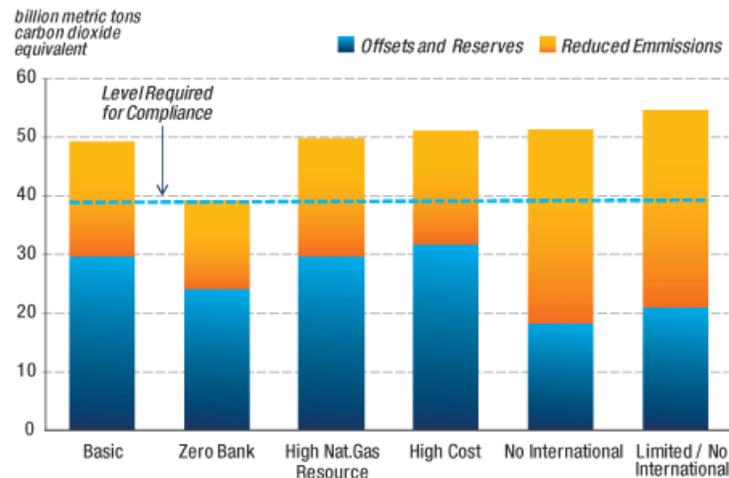
The critics also question the EIA’s assumption about the amount of electricity to be generated from nuclear power plants

the cases against a base case employing the same low-growth GDP then there is little to argue over.

The critics also question the EIA’s assumption about the amount of electricity to be generated from nuclear power plants given their current age and the number of new plants that will need to be built merely to sustain current generation capacity. Again the critics are targeting problems that they believe lie in the EIA’s base case. Those issues are valid and should be debated, but they don’t negate the relative comparisons of the alternative cases.

Exhibit 8. Offsets Are Main Way To Solve Emissions

**COMPONENTS OF CUMULATIVE COMPLIANCE
IN APA CASES, 2013-2035**



Source: Natural Energy Modeling System

Source: Rigzone.com

Probably the biggest disappointment with the analysis is the conclusion that purchased offsets will be the primary remedy (over 50%) for reducing carbon emissions

Probably the biggest disappointment with the analysis is the conclusion that purchased offsets will be the primary remedy (over 50%) for reducing carbon emissions. As a result, pollution behavior would appear to be little changed under the cap-and-trade mechanism. There is hope that it will impact behavior in the future, but that is dependent on a scenario where offsets are less available and clean-energy technologies are slow to develop resulting in much higher greenhouse gas allowance prices that would then push energy costs up and produce the desired environmental behavior. In other words, to be successful a lot of things have to happen in concert. In our experience, complex solutions to problems usually fail. The key message from the EIA’s analysis is that the APA fails its primary goals raising questions about the validity of the cap-and-trade mechanism. It also makes us leery of the post-election lame duck Congressional session.

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