

## MUSINGS FROM THE OIL PATCH September 14, 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

## Gas Shales: Good News And Bad News

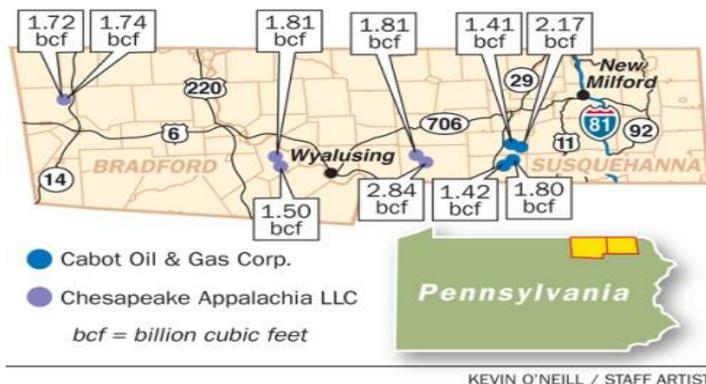
**The 632 producing Marcellus wells released 180 billion cubic feet of gas**

The Pennsylvania Department of Environmental Protection has released Marcellus gas shale production data for the 12 month period from July 1, 2009 through June 30, 2010. The 632 producing Marcellus wells released 180 billion cubic feet of gas, more than double annual natural gas production in Pennsylvania from years before gas shale exploration began. The data was made public in response to changes to the state's oil and gas disclosure law that mandates well-by-well production totals be released every six months. The revision to the disclosure law eliminated the provision that would have kept this data confidential for five years.

### Exhibit 1. Marcellus Production Better Than Expected

#### Marcellus gas production

These are the top 10 producing Marcellus Shale natural gas wells in Pennsylvania from July 2009 to June 2010.



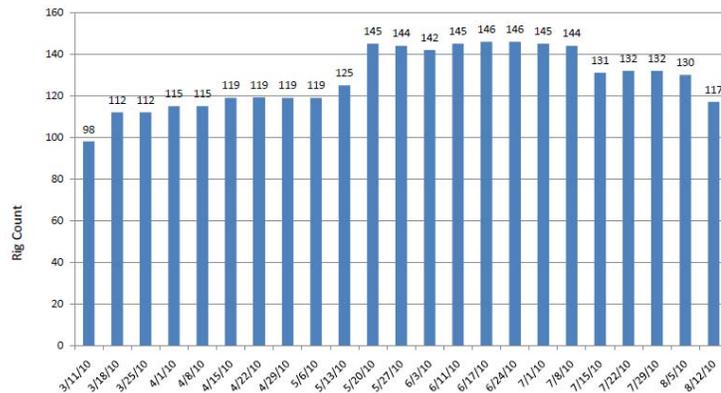
Source: *The Scranton Times-Tribune*

**Marcellus gas produced last year was worth about \$720 million, which is a large number but less than the cost of drilling and developing the wells**

John Harper, chief of the minerals resources division of the Pennsylvania Geological Survey, pointed out to *The Scranton Times-Tribune* that Marcellus wells that produced gas in the last fiscal year averaged almost two million cubic feet per day (cf/d) and was “a lot better” than the earliest dozen or so Marcellus wells in the state that only averaged 89,000 cf/d.

Dr. Terry Engelder, professor of geosciences at Penn State University and a student of the Marcellus gas shale, said the production data shows that expected ultimate recovery from the wells will exceed industry predictions. He compared the average cumulative production for Marcellus horizontal wells in the 5-county core area of the North Central and Northeast part of Pennsylvania to predictions made to investors in 2008 by Chesapeake Energy (CHK-NYSE). While the production data is better than expected, Dr. Engelder also noted that the Marcellus gas produced last year was worth about \$720 million, which is a large number but less than the cost of drilling and developing the wells. It is these negative economics that are beginning to play havoc with the profitability of the E&P companies active in the gas shale formations.

**Exhibit 2. Northwest LA – Haynesville Rig Count Falling**



Source: Petrohawk Energy

**Without a large volume of natural gas liquids in shale gas production, current gas prices make these wells uneconomical**

We are now seeing numerous producers indicating they are actively reducing or planning to reduce their rig counts in the gas shale formations around the country in response to the poor well economics – low natural gas prices and high drilling and well completion costs. Without a large volume of natural gas liquids in shale gas production, current gas prices make these wells uneconomical. As Dr. Engelder pointed out with the Marcellus data, producers are destroying capital by continuing to drill wells in this low gas price environment. Drilling activity in the gas shale formation continues to be driven by the need for producers to secure their leasehold positions with producing wells. Until drilling driven by the gas shale land rush leasing environment of the past three years is over, there is little reason to expect much of a rig count decline in the near term. Most likely the end of the lease-driven drilling will

**All the data supplied by the companies must be delivered along with a statement attesting to its accuracy signed by a “responsible corporate officer” under penalty of the law**

**Many people in the industry are concerned that the EPA study is the first step toward the agency gaining more control over fracturing regulations**

**Germany announced it will extend the life spans of the country’s 17 nuclear plants while alternative energy sources are developed**

happen in 2011, unless operators exhaust their financial resources and are forced to cut their drilling activity.

The bad news for the industry may have arrived in letters sent by the Environmental Protection Agency (EPA) to nine U.S. companies involved in providing fracturing services to the E&P industry. The letters asked for substantial detailed information such as: a list of the chemicals and their composition used in hydraulic fracturing fluid formulations; all data and studies related to the human health and environmental impacts and effects of these chemicals; the policies, practices and procedures employed in fracturing operations; and information about all hydraulic fracturing jobs performed within the prior 12 months. All the information is to be supplied voluntarily. If insufficient data is provided, the EPA will consider legal actions to secure the necessary data it feels it needs. In addition, all the data supplied by the companies must be delivered along with a statement attesting to its accuracy signed by a “responsible corporate officer” under penalty of the law. Increasingly the federal government is using the power of perjury as a way to intimidate corporate, and especially energy company, officers.

The purpose of this data request is, according to the letter, “To help the EPA evaluate the potential impact of hydraulic fracturing on drinking water quality and public health.” The EPA study is in addition to the investigation of the hydraulic fracturing process by Congress. Many people in the industry are concerned that the EPA study is the first step toward the agency gaining more control over fracturing regulations, even though many Washington observers remain convinced that Congress will not overturn the ruling exempting hydraulic fracturing operations from regulation under the Clean Water Act. It may be a while before the EPA study is completed, but until it is and the industry is cleared, we will keep our fingers crossed.

## **Is Nuclear Power Becoming The Bridge Fuel To The Future?**

The German government headed by Chancellor Angela Merkel announced that it will extend the life spans of the country’s 17 nuclear plants while alternative energy sources are developed. This is a reversal of a law passed in 2002 by the previous government that mandated the last nuclear power plant in Germany was to be shut down by 2022. That decision was bitterly resented by the nuclear energy companies but largely supported by the German public, which has held a deep aversion to anything nuclear, a view intensified in the late 1980s following the nuclear accident at Chernobyl in the Ukraine.

Recent polls show that the anti-nuclear attitude is shifting. A survey by Forsa, an independent polling institute, in July showed that 81% of Germans said their country could not do entirely without nuclear power, up from 59% five years ago. Today, nuclear power supplies 22.6% of German’s net electricity consumption. There has also

**Chancellor Merkel stated that “nuclear energy is a bridge”**

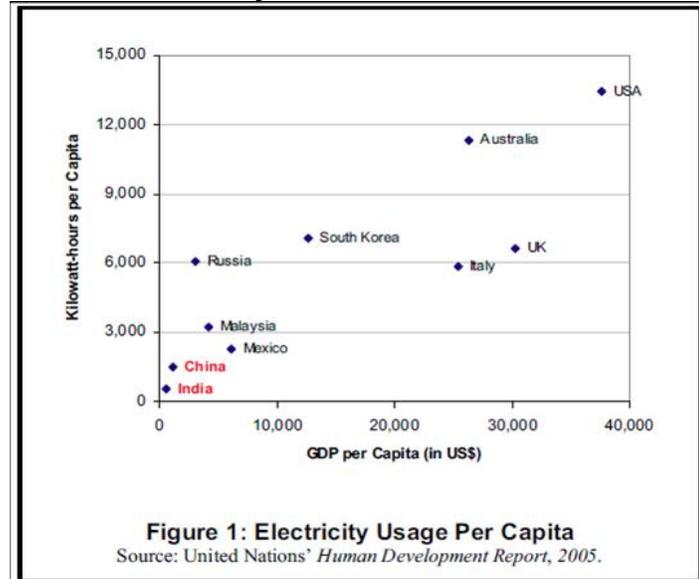
been a report that an agreement has been reached between the government and the utilities capping the cost of their plant upgrades at €500 million (\$640 million) for each one and that their taxes won't be raised in the future by new governments.

At the same time the government made this decision to extend the life of nuclear power plants it also pledged to increase the share of renewable energy as a source of electricity to 20% by 2020 from 15.6% now. Chancellor Merkel stated that “nuclear energy is a bridge.” This shift in attitude toward nuclear power comes at the same time that Italy and Sweden are reconsidering their long-held policies against nuclear power, not only for new energy supplies but also as a way to combat climate change.

**China has 23 nuclear reactors now under construction and plans to spend \$50 billion to build a total of 32 nuclear reactors by 2020**

The role of nuclear power globally appears set to expand, driven by both the need for new electricity supplies and as a “green” energy source. The U.S. Government Accountability Office (GAO) recently issued its findings on the Convention on Nuclear Safety, which is a consortium of 64 nations that operate civilian nuclear programs. They meet every three years in Vienna, Austria under the umbrella of the International Atomic Energy Agency. This body's importance is growing as countries are either expanding their existing nuclear power capacity or planning to establish new programs. China has 23 nuclear reactors now under construction and plans to spend \$50 billion to build a total of 32 nuclear reactors by 2020. At the same time, India and Pakistan are moving forward as is Jordan and the United Arab Emirates, which has a \$20 billion contract with South Korean vendors to build four 1,400 megawatt plants by 2012. As developing economies around the world grow, their demand for electricity will also increase.

**Exhibit 3. Electricity Use Climbs With Economic Growth**



Source: United Nations

**There are 438 nuclear power reactors operating in 33 countries and they supply 14% of the world's electricity**

The GAO reports that there are 438 nuclear power reactors operating in 33 countries and they supply 14% of the world's electricity. Another 58 nuclear reactors are under construction. In the United States, 22 applications are pending to build reactors on top of the 104 reactors in 32 states operated by 30 different power companies. Nuclear reactors in 2008 achieved a 91.1% capacity factor and generated 4,119 billion kilowatt-hours (kWh) of net electricity. This is significant because nuclear power contributed 19.6% of total net electricity generated in 2008 while the reactors represent only about one-tenth of the nation's generating capacity. In 2009, nuclear power contributed 20.2% of U.S. total electricity.

**The U.S. output represents nearly 30% of electricity generated from nuclear power plants worldwide**

Almost all the U.S. nuclear generating capacity comes from reactors built between 1967 and 1990 as there have been no new nuclear plants started since 1977. The lack of new nuclear power plant construction is due to natural gas powered plants being considered more economically attractive and because nuclear plant construction schedules were frequently extended by opposition following the Three Mile Island nuclear accident in 1979. One new nuclear power plant owned by the Tennessee Valley Authority is scheduled to start up in 2012 following its 2007 decision to complete construction of the unit that was previously begun and essentially 80% complete.

Despite a near total halt to new construction for more than 30 years, U.S. reliance on nuclear power has continued to grow. In 1980, nuclear plants produced 251 billion kWh, accounting for 11% of the country's total electricity generation. In 2009, that output had risen to 799 billion kWh, or over 20% of our power supply. The U.S. output represents nearly 30% of electricity generated from nuclear power plants worldwide.

**Exhibit 4. 104 Nuclear Reactors Currently Operate In U.S.**



Source: World Nuclear Association

The performance of the nuclear power industry in the United States has shown dramatic improvement over time. At the end of 1991,

**The CEO of Exelon said that since he expects natural gas prices to remain low for many years, new nuclear power plant construction will be pushed back by a decade, or possibly two**

there was 97,135 megawatts (MW) of operable nuclear generating capacity. In March 2009, it was 101,119 MW. That small increase masks some significant changes within the industry. First, there was a decrease of 5,709 MW due to the premature shutdown of eight reactors due to their having high operating costs. Second, changes to power ratings of various reactors added 6,233 MW. Finally, there was an increase of 3,470 MW due to the start-up of two new reactors (Comanche Peak 2, Watts Bar 1) and the restart of one unit (Browns Ferry 1).

There have been more than 120 nuclear plant upratings totaling over 5,700 MW. A further 67 uprating projects are on the horizon, many representing investments of \$250 to \$500 million each. Exelon (EXC-NYSE) has plans to uprate much of its nuclear power plant fleet to provide the equivalent of one new nuclear plant by 2017 – some 1,300-1,500 MW, at a cost of about \$3.5 billion. Over the decade to 2009, the company has already added 1,100 MW in uprates. At the end of last week, the CEO of Exelon said that since he expects natural gas prices to remain low for many years, new nuclear power plant construction will be pushed back by a decade, or possibly two.

Another major trend in the industry has been the steady improvement in operating efficiency coming from improved maintenance. This has contributed to a greatly increased capacity factor (output compared to nominal full-power capacity). This factor has risen from 56.3% in 1980 to 66% in 1990 to 91.1% in 2008. A significant contributing factor has been the reduction in the length of refueling outages, which in 1990 averaged 107 days but dropped to 40 days in 2000. The outage time now has shrunk to 15 days. In addition, the average thermal efficiency of the plants rose from 32.49% in 1980 to 33.40% in 1990 and 33.85% in 1999. These operational improvements have enabled the industry to boost its total power generation output by 40% between 1990 and 2008, representing the equivalent of 29 1,000-MW reactors.

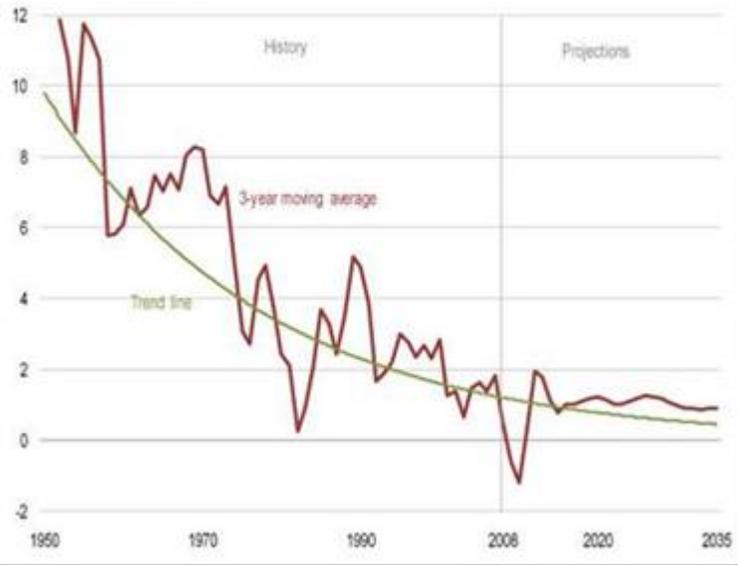
**It is estimated that about 90 reactors will likely have 60-year lifetimes**

The outstanding operating performance of nuclear reactors has led to the U.S. Nuclear Regulatory Commission (NRC) extending the operating licenses of reactors. As of the end of 2009, the NRC had extended the licenses of 59 reactors, over half of the total number of reactors in the United States. The NRC is considering additional license renewal applications with more applications expected by 2013. It is estimated that about 90 reactors will likely have 60-year lifetimes with owners undertaking major capital programs to upgrade them at around 30-40 years of life.

The Energy Information Administration's (EIA) long-term energy forecast calls for electricity consumption to grow steadily although at a low rate. The EIA forecast model calls for all existing nuclear power plants to operate through 2035 with all of them getting operating license renewals including some with a second 20-year extension after plants reach 60-years old. The amount of new nuclear power added will depend on the economy and power

**Exhibit 5. Electricity Growth Will Be Slow But Steady**

Figure 59. U.S. electricity demand growth 1950-2035  
percent, 3-year moving average

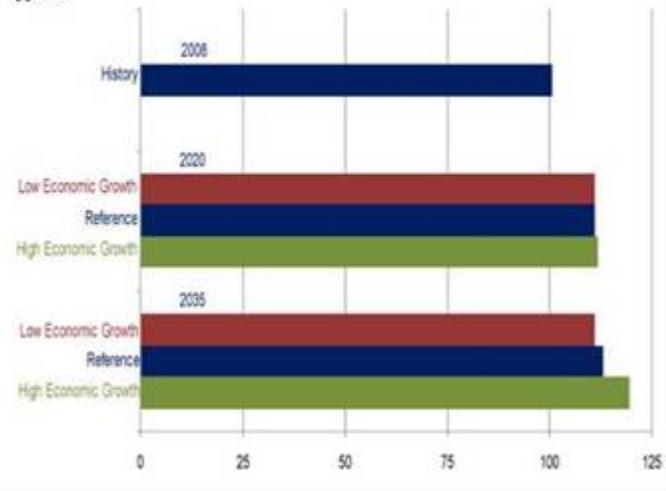


Source: EIA

demand with the minimum of six gigawatts (GW) added and as much as 15 GW if the economy experiences high growth and high oil prices.

**Exhibit 6. Nuclear Power Capacity Projected To Grow**

Figure 64. Electricity generating capacity at U.S. nuclear power plants in three cases, 2008, 2020, and 2035  
gigawatts

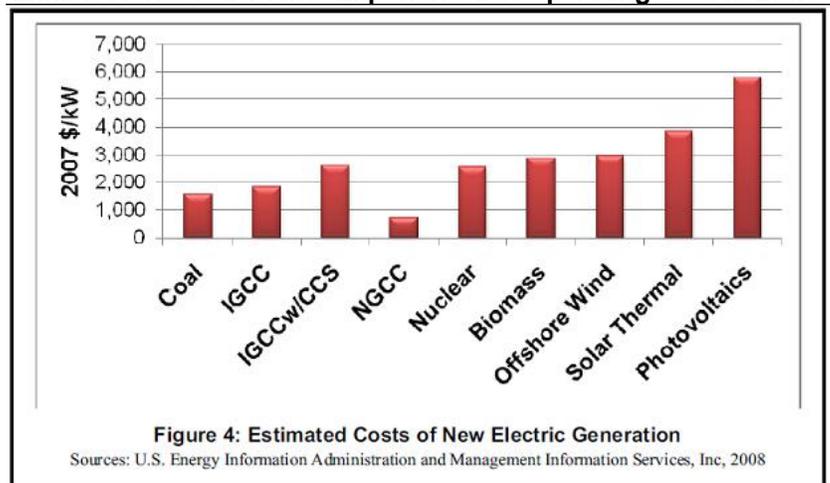


Source: EIA

While nuclear power plants are very expensive to build, their operating costs are low. In 2008 in the United States, the

operational cost of nuclear power was 1.87¢/kWh, or 68% of the cost of electricity produced from coal (2.75¢/kWh) and a quarter of that from natural gas (7.48¢/kWh).

#### Exhibit 7. Nuclear Plants Expensive But Operating Cost Is Low



Source: EIA

**In the United States, natural gas is the fuel projected to be the bridge until alternative fuels increase their contribution**

In the United States, natural gas is the fuel projected to be the bridge until alternative fuels increase their contribution. Germany obviously sees a different scenario for its power supply. One has to wonder whether, given the experience of the rest of the European continent with alternative fuels and even Germany's solar experience, does the country's nuclear power decision represent recognition that alternative power economics are not ready to be embraced? Is that a message the rest of the world should pay attention to?

## Coming To Your Neighborhood – Electric Car Surcharges?

**If the Department of Energy's forecast proves correct that there will be 100 million electric or hybrid cars in use by 2020**

The push has started to build out the infrastructure for charging the avalanche of electric cars predicted to hit the U.S. roadways starting this fall. If the Department of Energy's forecast proves correct that there will be 100 million electric or hybrid cars in use by 2020, fully 40% of the U.S. registered vehicles, production of electric utilities needs to gear up rapidly. The problem is that these vehicles will need recharging facilities. That is creating a challenge for utilities and their decisions could impact homeowners much more than they anticipate.

Auto manufacturers are looking at where in the nation they want to roll out their new electric and plug-in hybrids. To be successful, the manufacturers know they must choose locations that are receptive to these new vehicles and prepared to handle the challenges. In selecting their target areas, the auto manufacturers look for three factors: a large number of hybrid vehicle owners; a friendly public policy; and supportive utilities. The manufacturers are concerned

**They have found that hybrid ownership tends to cluster in particular neighborhoods and early electric vehicle reservations are showing a similar trend**

that without these three factors, unprepared areas could experience power outages, consumers seeking to install home-charging units could experience paperwork problems, and there could be stranded motorists.

One of the positive factors could also become a problem. Auto manufacturers look for concentrations of hybrid owners as a sign that electric cars will be embraced. They have found that hybrid ownership tends to cluster in particular neighborhoods and early electric vehicle reservations are showing a similar trend. That portends a lot of battery charging in these areas and potential electric system breakdowns. The problem was highlighted by Mike Tinskey, manager of sustainability activities at Ford Motor Company (F-NYSE). "That vehicle is going to be the largest discretionary load on the home. What if you had a neighborhood with 10 electric vehicles and they're all on the same transformer? That's a real problem for utilities, and they want to be able to manage that."

**In the case of needing to upgrade a transformer to handle electric vehicle charging, who pays?**

Transformers step down high-voltage power for residential electricity use. Typically in neighborhoods, one transformer serves three to six homes. If there is overuse, it can lead to power outages or decrease the lifespan of the transformer. Many transformers are already stressed by the demands of large-screen TVs, air conditioners and other large power-sucking appliances. Some utilities are considering possible transformer upgrades, but depending upon their rate structure, certain upgrades need to be paid for by the customer because they go beyond the standard upgrade. In the case of needing to upgrade a transformer to handle electric vehicle charging, who pays?

Commonwealth Edison in Chicago is testing devices that allow electric vehicles and transformers to automatically adjust the rate and timing of charges if there are too many vehicles being charged at the same time. It has even been suggested by Commonwealth Edison executives that there may come a point at which electric vehicle owners will be able to sell back to the utility electricity from their car batteries during periods of high demand.

**In an attempt to convince customers to charge their cars at night or during off-peak load times, many utilities are counting on smart meters and time-of-day to influence consumer habits**

A critically important question for utilities is whether their customers will opt to use their household current (120-volt) to charge their electric vehicles even though it takes 20 hours to repower a Nissan Leaf? Or will customers be willing to ante up the roughly \$2,000 to install a 240-volt line that will cut the recharging time to only seven or eight hours? In an attempt to convince customers to charge their cars at night or during off-peak load times, many utilities are counting on smart meters and time-of-day to influence consumer habits. Of course that means significant investment in new meters, computer software and education to achieve that objective. All of these costs will have to be borne by either the electric vehicle owners or all the electricity customers. Expect customers to revolt at the prospect of higher electricity rates in order to accommodate electric vehicles.

## Auto Industry: Grading On A Curve? Gentlemanly “C”?

**The August auto sales numbers were recently released showing a drop both from July of this year and August a year ago**

We have pointed out numerous times that a key to increased U.S. energy demand is the health of two important industries – automobiles and housing. The August auto sales numbers were recently released showing a drop both from July of this year and August a year ago as financial incentives could not offset the sagging economy and rising unemployment claims. The August decline was not totally unexpected as sales last August were boosted by the government’s cash-for-clunkers program.

According to *TrueCar.com* analyst Jesse Toprak, "This was the worst August for the industry in 28 years, and if adjusted for population, we haven't seen sales this bad since World War II." He went on to say, "The domestic car makers had a relatively decent month, but clearly the second-half recovery will be much more sluggish than we had initially predicted." Mr. Toprak’s conclusion clashes with the forecast produced by auto consultant A. T. Kearney touched on later.

**The Focus and Fusion models were significant beneficiaries of the cash-for-clunkers program**

Industry sales in August were at an 11.47 million seasonally adjusted annual rate (SAAR) compared to the 14.17 million SAAR rate of last August according to *Autodata*. Total vehicle deliveries were down 5% from July and off 21% from August 2009. Interestingly, with gasoline prices at low levels, Ford’s (F-NYSE) F-Series pickup trucks and Taurus sedans were bright spots while the fuel-efficient Focus and Fusion cars experienced double-digit declines. The Focus and Fusion models were significant beneficiaries of the cash-for-clunkers program. Chrysler saw sales of its Jeep product line increase 17% while its Ram trucks were 6% higher.

**If gasoline prices continue at their current level of well less than \$3 per gallon, we should expect to see more sales of fuel-hungry vehicles**

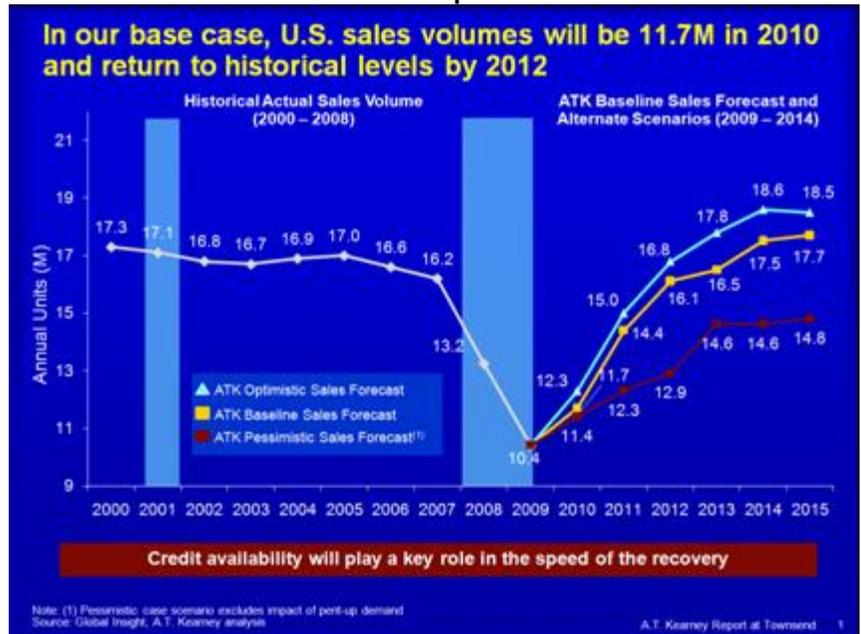
These sales trends for trucks and less fuel-efficient models are not surprising given the price of gasoline and expectations that gasoline prices will stay weak for some time. In spring 2008, Ford executives perceived that the domestic vehicle market was at a tipping point in customer buying habits, i.e., foregoing trucks in favor of more economical cars. They estimated that the tipping point is whenever gasoline pump prices reach \$3.50 a gallon. If gasoline prices continue at their current level of well less than \$3 per gallon, we should expect to see more sales of fuel-hungry vehicles. That will be good for oil refiners down the road and auto manufacturers who tend to make more money on larger vehicles. It won’t make the Obama administration happy as it is pushing fuel-efficient and alternative fuel (say expensive) vehicles.

In light of the shifting economic winds and low gasoline prices, we were quite interested in the latest A.T.Kearney forecast for vehicle sales contained in its [14<sup>th</sup> Annual Report of the Automotive Industry](#). The firm based its latest forecast on several key assumptions. One assumption is that since 2007, approximately 20 million units of pent-up vehicle demand have been created by the recession. The

**Their greatest concern is that tight auto-lending restrictions continue to impede an immediate full recovery in auto sales**

firm believes that more than nine million units of this pent-up demand will be made up during the economic and industry recovery anticipated over the next five years. Their greatest concern is that tight auto-lending restrictions continue to impede an immediate full recovery in auto sales. This lack of financing has been cited by a number of auto analysts and observers. In fact, there has even been proposed the creation of a new federal government program for autos similar to the Federal Housing Authority for homes. Whether that is needed or not remains to be seen, although it would be welcome by auto manufacturers interested in boosting demand for its output.

**Exhibit 8. Forecast Calls For Sharp Auto Sales Rebound**



Source: A. T. Kearney

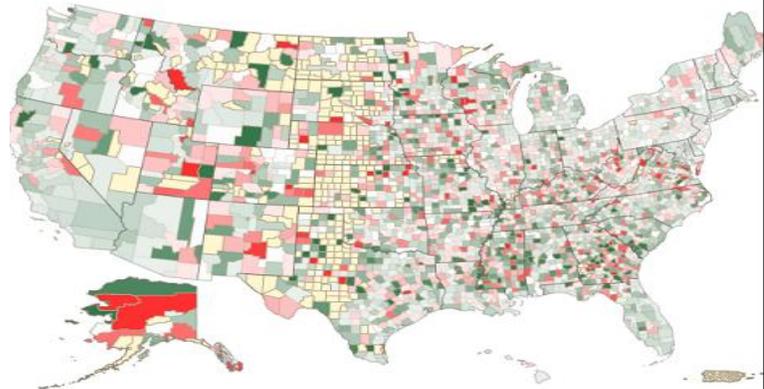
In looking at the A. T. Kearney forecast, we are surprised at how sharply it expects the auto sales number to snapback from the recession of 2008-09. We know that automobiles are important to consumers for getting to work, assuming they have jobs, but there are alternatives such as used vehicles that cost less than new ones.

**The latest loan credit data shows that Americans are doing more to maintain their auto loans**

The latest loan credit data shows that Americans are doing more to maintain their auto loans compared to the delinquencies on their home mortgages. This is a consistent pattern as vehicles are important for generating income, which is critical for living, while living accommodations can be changed as long as families have income.

**Exhibit 9. Auto Loans Are Improving**

Auto Loan Delinquency Rate 60+ Days - Year-Year Change



Darker shading indicates higher percentage.

Data for the smallest 10 percent of the counties by population have been removed; the counties are shaded yellow because small-population statistics are prone to extreme values and erratic fluctuations.

Note: Red - Conditions have worsened

Green - Conditions have improved

White - No change (within 0.05%)

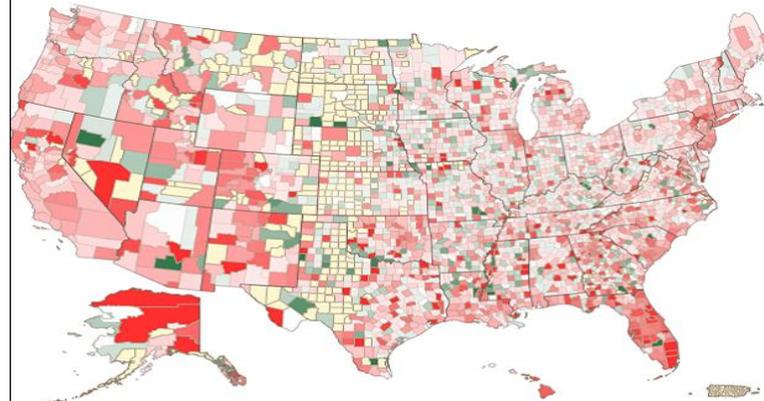
Year-year changes are stated as percentage point differences from one year ago. The relative shade of each color is also determined by the percentage point change.

Source: Credit reporting agency, TransUnion LLC'sTrend Data database.

Source: The New York Federal Reserve Bank

**Exhibit 10. Home Mortgage Loans Are Deteriorating**

All - Mortgage Delinquency Rate 90+ Days - Year-Year Change



Darker shading indicates higher percentage. Data for the smallest 10 percent of the counties by population have been removed; the counties are shaded yellow because small-population statistics are prone to extreme values and erratic fluctuations.

Note: Red - Conditions have worsened

Green - Conditions have improved

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Year-year changes are stated as percentage point differences from one year ago. The relative shade of each color is also determined by the percentage point change.

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Source: Credit reporting agency, TransUnion LLC'sTrend Data database.

Source: The New York Federal Reserve Bank

**If consumers feel economically comfortable they may be inclined to purchase new vehicles soon before the landscape for choices becomes muddled**

One of the upsides to the challenged auto industry, according to A.T. Kearney, is the development of more “global car” models. These cars will be built on global manufacturing platforms that produce over one million units of production to be sold worldwide. The evolution of global car platforms can lead to \$700 per vehicle cost advantages compared to non-global car models. That savings can be critical for the profitability of auto manufacturers.

While automobile consumers struggle with economic cross-currents, they are beginning to wonder what impact the various alternative fuel vehicles may have on their car choices. If consumers feel economically comfortable (high job security) they may be inclined to purchase new vehicles soon before the landscape for choices becomes muddled. We now have another possible confusing element entering the picture – the federal government’s revised fuel economy and emissions rating system. At the end of August, the Environmental Protection Agency and the Transportation Department issued proposed new rules for providing labels for vehicles. This will be the most substantial change in 30 years to the price-and-mileage labels affixed to the windows of new cars at dealerships.

#### Exhibit 11. Letter Not Mileage Grades



Source: *The Wall Street Journal*

The proposed new system will assign letter designations to each vehicle based on its fuel consumption and emissions performance. In line with the Obama administration’s effort to promote electric cars and other advanced-technology vehicles, these are the only models

that can receive A-plus, A or A-minus grades. Many compact and midsize vehicles would get Bs, while bigger and more powerful models such as SUVs; and pickup trucks would get Cs or C-minuses.

**Exhibit 12. Grading Auto Fleet On A Curve?**

Grading scale | New A-through-D grades would rate vehicles for fuel use and greenhouse-gas emissions.

 Nissan Leaf Battery powered	 Toyota Prius Gas-electric hybrid	 Ford Focus Gas powered	 Jeep Grand Cherokee Gas powered	 Ferrari 612 Scaglietti Gas powered
MSRP \$32,780	\$22,800	\$17,170	\$30,215	\$304,000
GRADE <b>A+</b>	<b>A-</b>	<b>B</b>	<b>C+</b>	<b>D</b>

Source: EPA and U.S. Department of Transportation. The official EPA Fuel Economy News Team has developed these grades. © 2009 EPA and U.S. Department of Transportation. All rights reserved. Photos courtesy of Nissan, Toyota and Ford. Scaglietti photo by Frank Ockenjurg.

Source: *The Wall Street Journal*

**The last time American citizens were totally under the control of government officials was when they were in school where the rules were clear-cut**

We were amused by a comment by Dave McCurdy, president of the Alliance of Automobile Manufacturers, the industry’s largest trade group, as reported in *The Wall Street Journal*. “The proposed letter grade falls short because it is imbued with school-yard memories of passing and failing,” he said. Another spokesperson commented that “grades may inadvertently suggest a government label of approval.” Both of those statements are correct, and in our view, reflect the instinctive beliefs of the Obama administration. The last time American citizens were totally under the control of government officials was when they were in school where the rules were clear-cut and teachers had the power to motivate actions by issuing academic and behavioral grades. Outside of the military, this is the epitome of Big Brother knows best.

**The label really doesn’t help the consumer since he already knows that SUVs and pickups use more fuel than compact and mid-sized cars**

A debate has evolved over these proposed new guidelines and the labeling. Some perceive the stickers as being advertising when they include phrases such as “Saves \$6,900.” While the label is a simple rating system that factors in more than just the amount of fuel consumed, it really doesn’t help the consumer since he already knows that SUVs and pickups use more fuel than compact and mid-sized cars. So far this year as gasoline prices have remained low and stable, the sale of SUVs and crossover vehicles rose 21% through July while sales of small cars were up only 7.8%. Unless gasoline pump prices climb back toward \$3.50 per gallon with prospects of them heading higher in the future, car buyers will be less inclined to alter their purchasing habits.

Low gasoline prices will make it much more difficult for the Obama administration to convince Americans to buy electric, plug-in hybrids or natural gas-powered vehicles. One has to wonder whether we will see government edicts that automobile manufacturers’ fleet sales must attain an average grade of B rather than the gentlemanly C of college-days gone by. By putting fines in place, manufacturers

**The role of school yard bully will now be played by auto dealers who will drive consumers into those A-rated vehicles**

will only produce a mix of vehicles that assures them the higher passing grade – meaning many more electric and alternative vehicles will be manufactured and fewer sedans, SUVs and pickups. Prices of less fuel-efficient vehicles will be ramped up while incentives will be increased for A-rated vehicles. See how easy it will be to market these less-desirable vehicles. Watch how the government can justify all its battery company and electrification infrastructure investments. Doesn't everyone want to have an A-rated car in their driveway, especially since it will be more fuel-efficient and environmentally friendly? The role of school yard bully will now be played by auto dealers who will drive consumers into those A-rated vehicles.

## RI Energy Saving Study Clashes With European Plan

A new report on electrical energy conservation in the state of Rhode Island was recently issued (but not posted to the government's web site yet) claiming potentially significant savings over the next decade. Interestingly, one of the principle recommendations in the report has already been embraced by energy conservation legislation both in the U.S. and Europe but is now creating an uproar on the continent as implementation begins. So can one seriously accept the study's conclusions?

**Over 1996-2006, these efficiency programs delivered energy savings at the low cost of 3-cents per kilowatt-hour**

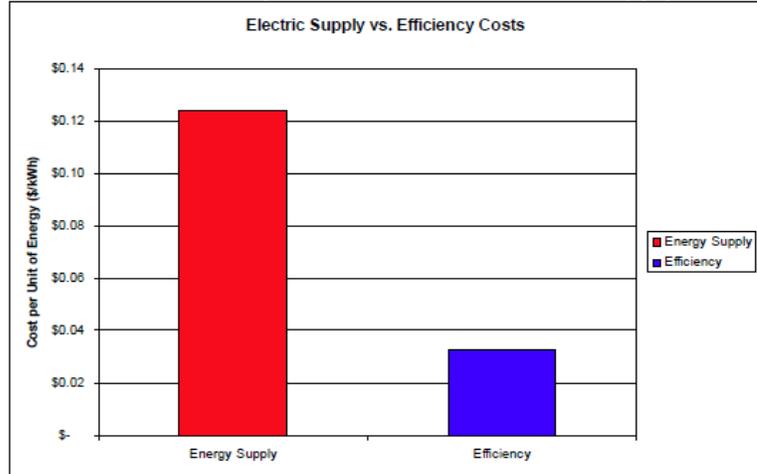
In 2006, the Rhode Island legislature passed The Comprehensive Energy Conservation, Efficiency and Affordability Act of 2006. The law assigns the responsibility for seeking out energy conservation opportunities in Rhode Island to the state's Energy Efficiency and Resources Management Council (EERMC). The law changed the way in which energy supply and energy conservation is to be considered by the state's primary electric utility – National Grid (NGG-NYSE). Under the prior policy, National Grid was mandated to invest in an arbitrary, fixed amount of low-cost energy efficiency programs to help customers save money and lower their energy bills. Over 1996-2006, these efficiency programs, including energy audits and rebates for efficient appliances and light bulbs, delivered energy savings at the low cost of 3-cents per kilowatt-hour (kWh).

**The new model directs National Grid to invest over time in all energy efficiency projects that are cheaper than the cost of new energy supplies**

With the enactment of the new law, regulation shifted from an "arbitrary" model for efficiency with a required, fixed investment level of 2.0 mills (a tenth of a cent) to an "economic" model for efficiency. The new model directs National Grid to invest over time in all energy efficiency projects that are cheaper than the cost of new energy supplies. The EERMC commissioned a study by energy consulting firm, KEMA Inc., to identify those opportunities and their possible savings for Rhode Island consumers. When the first phase of the study was completed in 2008 and forwarded to the Rhode Island Public Utilities Commission, the Rhode Island General Assembly, the Rhode Island Office of Energy Resources and National Grid, the point was made that over the prior eight years the cost to purchase power from New England electric power generators had more than tripled from 3.5-cents/kWh to 12.5-cents/kWh. The sharp escalation

in the cost of power was due to the tightening of global fossil fuel markets and the resulting rise in oil and gas prices. Since the cost of natural gas-powered electric generation sets the marginal price for electricity in the region, Rhode Island consumers were seeing their electric bills skyrocket.

**Exhibit 13. Efficiency Cost Is Well Below New Supply Cost**

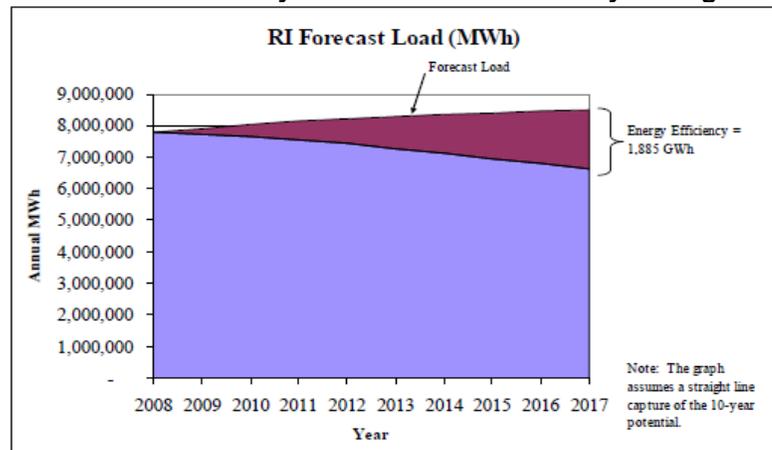


Source: EERMC 2008 report

**In the updated study just released, the cumulative projected power consumption savings are estimated to have increased slightly to 29% over the forthcoming decade**

As energy efficiency opportunities in 2008 were estimated to cost about 3-cents/kWh versus the estimated new supply cost at 12.5-cents/kWh, the decision to mandate National Grid to invest in these efficiency-saving opportunities seemed a sound strategy. Not only was there a huge savings projected but the amount of energy to be consumed would lead to about a 24% reduction in energy use over the next decade. In the updated study just released, the cumulative projected power consumption savings are estimated to have increased slightly to 29%, or 2,140,000 megawatt-hours, over the forthcoming decade.

**Exhibit 14. 2010 Study Claims Greater Electricity Savings**

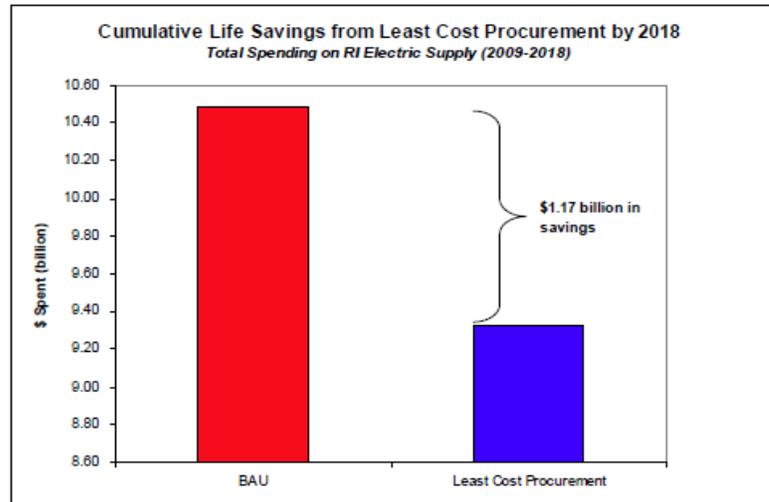


Source: EERMC 2008 report

**The new study has significantly increased that estimate to \$1.85 billion in savings**

The impact of energy-efficiency steps for Rhode Island electricity consumers over the next decade was estimated in 2008 to generate savings of \$1.17 billion. The new study has significantly increased that estimate to \$1.85 billion in savings. The new study was based on an 18-month effort that involved conducting 450 residential phone surveys and on-site visits to commercial and industrial facilities within the state.

#### **Exhibit 15. Over 50% More Savings Now Projected**



Source: EERMC 2008 report

**Recent academic research has shown that conservation savings generally are over-estimated because consumers don't fully understand which lifestyle changes have the greatest energy-savings impact**

The 2008, and now the 2010 study points to these electricity savings coming from conservation steps such as switching from incandescent light bulbs to compact fluorescent light bulbs (CFL), making changes to outdoor lighting controls and installing high-efficiency air conditioners and clothes dryers. As we pointed out in an article in the last issue of the Musings, recent academic research has shown that conservation savings generally are over-estimated because consumers don't fully understand which lifestyle changes have the greatest energy-savings impact. As the research demonstrated, people are more likely to believe that turning off lights is a major energy savings move when, in reality, more power is saved by lowering the water temperature setting on the family's clothes washer.

**The more controversial energy savings move is the switch from incandescent light bulbs to CFL bulbs**

The more controversial energy savings move is the switch from incandescent light bulbs to CFL bulbs. The latter bulb can generate the same amount of light (but maybe of a lower quality) with less energy than the conventional incandescent bulb. This belief has been institutionalized in various countries around the world, including the United States, with laws banning the sale of incandescent bulbs in the future. As consumers are finding, CFLs are much more costly to purchase, have mercury that makes their disposal more difficult and risky if the bulb is broken, and that CFLs for use in special applications are highly expensive, such as those that work with lighting dimmer switches.

**Exhibit 16. Europeans Love Incandescent Bulb**

Source: Agora Financial

**This is Phase 2 of the EU's plan to outlaw all incandescent light bulbs in the coming years as energy saving and environmental improvement actions**

**The new ban has contributed to 75-watt packages of incandescent bulbs flying off the shelves as consumers stocked up before the ban went into effect**

In the European Union (EU) at the end of August, citizens made a run on stores to stock up on 75-watt incandescent light bulbs that can no longer be manufactured or imported starting in September. This is Phase 2 of the EU's plan to outlaw all incandescent light bulbs in the coming years as energy saving and environmental improvement actions. The same consumer reaction occurred in Europe last year as Phase 1 went into effect banning the manufacture and importation of 100-watt incandescent light bulbs. Their use and sale is still allowed, however, so anyone who bought bulbs in bulk could be selling them at a healthy premium now.

We suspect Europeans are also not enamored with the quality of the light given off by CFL bulbs along with their cost. In fact, it was their dislike and avoidance of CFL bulbs that forced the EU to ban incandescent light bulbs. According to the EU web site, "Although energy-saving bulbs have been clearly labeled since 1998 as the most cost-effective bulbs, their relatively high purchase price has inhibited take-up." The EU web site further states: "To remedy this, EU governments and the European Parliament asked the Commission to adopt minimum requirements phasing out the least-efficient bulbs." According to one media report from Finland, CFL bulbs still are not selling as well as the government expected; rather the new ban has contributed to 75-watt packages of incandescent bulbs flying off the shelves as consumers stocked up before the ban went into effect.

The U.S. ban on 100-watt bulbs goes into effect in January 2012

**Here's a job creation idea for the Obama administration – a light bulb police!**

with the restrictions on other-sized light bulbs being implemented over the next two years. Here's a job creation idea for the Obama administration – a light bulb police! Just think how many homes, offices and industrial facilities will need to be inspected for violation of the government's light bulb policy. It's probably too much to hope for a repeat of the 2008 New Zealand experience where the National Party, then a minority party, made overturning the upcoming ban on incandescent light bulbs in that country a campaign issue that carried them to victory. The ban was overturned in December 2008.

## **Labor Day Gasoline Prices At Lows: Driving Impact?**

**Gasoline prices had fallen for three consecutive weeks bringing the price to the lowest level of the 2010 summer driving season and the second lowest price at this point in time of the year in the past five years**

As we went into the Labor Day weekend, the Energy Information Administration (EIA) reported that the average price for gasoline in this country was \$2.68 per gallon, up 9-cents from the same week in 2009. Gasoline prices had fallen for three consecutive weeks bringing the price to the lowest level of the 2010 summer driving season and the second lowest price at this point in time of the year in the past five years. The average gasoline price was considerably below the pump price in 2008 (\$3.68/gallon) and marginally lower than the 2007 (\$2.80/gallon) and 2006 prices (\$2.73/gallon).

**We saw more highway patrol cars in that stretch than we have seen on entire round trips to Rhode Island**

With the East Coast combating Hurricane Earl's effects and Texas burdened by fast-forming Hurricane Hermine, we probably should expect weak gasoline demand data over the next couple of weeks. Since we drove to Rhode Island, leaving August 31<sup>st</sup>, our observations about the traffic we encountered may be of some value in gauging upcoming gasoline demand. Although we had to detour from Houston due to a chemical truck accident clean-up on I-10 near Beaumont, which we estimate cost us 30 minutes of travel time, we arrived in Slidell, Louisiana for lunch in the same time normally needed. We measured the 30-minute time penalty by how long it took us to get to Lafayette, Louisiana. The conclusion one can make is that traffic was sparse on I-10 and I-12. Maybe it was because the Texas and Louisiana state police were out in full force and actually stopping vehicles. We saw more highway patrol cars in that stretch than we have seen on entire round trips to Rhode Island. Since it was the last day of August, we cannot be dissuaded from the thought that police officers have monthly traffic ticket quotas.

**We wondered whether the heavier-than-expected truck traffic was because drivers were trying to get home before the Labor Day Weekend**

Our travel this time took us to Asheville, N.C., so we headed up I-65 to Atlanta and then state highways to our destination. Other than the late evening rush-hour traffic in Atlanta, the roads were fairly empty all the way. That was also the case for our restaurant stops. We spent Wednesday night at the Biltmore Inn on the Biltmore Estate, leaving about mid-day on Thursday. Traffic on I-81 in Virginia, West Virginia, Maryland and Pennsylvania was very heavy. In fact, there were so many packs of trucks that our average speed was reduced since many times the trucks tried to pass each other and had trouble doing so on the hilly roads. We wondered whether the heavier-than-expected truck traffic was because drivers were trying to get home before the Labor Day Weekend or whether they

**We now believe the trucks were avoiding the coastal roads as the effects of the hurricane would be a problem**

were taking an inland route to avoid possible Hurricane Earl problems. Once we turned eastward at Harrisonburg, Pennsylvania and headed toward White Plains, N.Y., the truck traffic eased up, although the roads were still relatively heavily trafficked. On Friday morning we overheard some people at our hotel talking about the amount of traffic they had encountered, which seemed to mirror our experience. We now believe the trucks were avoiding the coastal roads as the effects of the hurricane would be a problem. Wind and rain create serious driving challenges for 18-wheelers.

**The weather and its impact on holiday activities had to reduce the holiday weekend traffic, and presumably gasoline demand**

Upon arrival in Charlestown, R.I., we learned that at least one-third of the weekend was washed out as the beaches were closed due to the effects from Hurricane Earl. Several school systems shut down on Friday due to concern about the impending storm and the weather was generally lousy – rainy and windy. As the weather improved throughout the weekend, beach traffic picked up, but due to the rip tides and waves, the Rhode Island state beaches were mostly closed on Saturday. The weather and its impact on holiday activities had to reduce the holiday weekend traffic, and presumably gasoline demand. We will be interested to see the reported weekly gasoline demand data over the next two weeks.

## **Wind Power In Northeast Continues Battling Poor Economics**

**The first two of the three appeals are questioning the legality of the law that established the procedure for approval of the PPA**

The offshore wind energy battle-ground states of Massachusetts and Rhode Island will remain in the spotlight for the balance of the year as legal and regulatory battles continue over the approval of projects in Nantucket Sound and off Block Island. In Rhode Island, the Public Utilities Commission has approved the Power Purchase Agreement (PPA) between Deepwater Wind and National Grid (NGG-NYSE), but a series of appeals have been filed with the state's Supreme Court over the decision. Appeals have been filed by the state's Attorney General Patrick Lynch, the National Law Foundation and jointly by Toray Plastics and Polytop Corp., two large electric power customers. The first two of the three appeals are questioning the legality of the law that established the procedure for approval of the PPA. The two manufacturing customers are appealing over the rate that was established. There still remains the possibility that TransCanada Power, the owner and operator of a Maine-based wind farm, may file an appeal over the discriminatory aspect of favoring the offshore Block Island wind project at a higher price per kilowatt-hour than it is prepared to deliver wind-generated electricity to the state.

**AG Coakley says the renegotiated agreement will save consumers up to \$450 million over the 15-year life of the contract**

A similar battle is unfolding in Massachusetts where the recent "deal" between the state's Attorney General Martha Coakley and Cape Wind and National Grid to secure a lower than originally negotiated PPA rate has generated strong opposition. AG Coakley says the renegotiated agreement will save consumers up to \$450 million over the 15-year life of the contract.

On the same day the Attorney General was announcing the revised

**His claim is that National Grid ignored its own procedures and did not consider cheaper alternatives to Cape Wind**

PPA deal, Dr. Jonathan A. Lesser, an energy economist and president of Continental Economics, filed independent testimony in the Massachusetts Department of Public Utilities (DPU) cost investigation hearing charging that Cape Wind's power agreement would impose a \$3.2 billion tax on the state's ratepayers. His claim is that National Grid ignored its own procedures and did not consider cheaper alternatives to Cape Wind.

Dr. Lesser testified that "First, by its own admission, National Grid did not compare the cost-effectiveness of the PPAs with any other renewable generating resources located outside Massachusetts. Second, there is no evidence in this case that National Grid properly evaluated any in-state renewable resource alternatives, despite the clear availability of such resources in the time frame, and at a lower price, than Cape Wind." His argument goes to the issue of the Renewable Portfolio Standards (RPS) under the legal theory involved in the Dormant Commerce Clause.

**Cape Wind's costs would add \$1.5 million a year to the expense budgets of cities and towns in the state, the equivalent of 25 jobs in each community or 3,400 jobs total**

Earlier in July, a report by W. Robert Patterson & Associates, a management consultant specializing in the energy, supply, utility and alternative fuels industries, was issued that projected Cape Wind's costs would add \$1.5 million a year to the expense budgets of cities and towns in the state, the equivalent of 25 jobs in each community or 3,400 jobs total. Mr. Patterson pointed out that "in the National Grid filing at the DPU, they have sealed not only Cape Wind's costs but also the market analysis that the consultants to National Grid used to help prepare the contract between National Grid and Cape Wind. They don't want anybody to know how bad this deal is."

**The problem with a scaled down version of Cape Wind is that it will increase the cost of power for National Grid**

Now there are reports that Cape Wind is having trouble finding a buyer for the remaining half of the power it did not sell to National Grid. As a result, according to recent regulatory filings by AG Coakley and National Grid, Cape Wind is preparing to move forward with the project based on fewer than the originally designed 130 wind turbine plan. The problem with a scaled down version of Cape Wind is that it will increase the cost of power for National Grid, something none of the parties want to tell ratepayers if there is any hope of securing additional power buyers.

**Recently, there have been several major media articles detailing increased military concerns about radar problems and wind farms**

Cape Wind's project also is plagued by lawsuits challenging the decision-making process following Secretary of the Interior Ken Salazar's decision to approve the project this spring. The Alliance to Save Nantucket Sound and the Town of Barnstable sued the Federal Aviation Administration seeking to reverse its approval of the project based on aviation safety concerns. These concerns are related to the potential of wind turbines to degrade the quality of the radar signal used for navigation by planes flying around wind farms. Recently, there have been several major media articles detailing increased military concerns about radar problems and wind farms.

The alliance and a coalition of conservation organizations sued the federal agencies that approved the project asserting violations of the Endangered Species Act and other federal environmental laws. But

**Their suit alleges that the Massachusetts law requiring utilities to buy renewable power from projects in the state is unconstitutional**

maybe the most significant lawsuit for Cape Wind, and potentially for the Block Island project in Rhode Island, is one filed by TransCanada Power, the owner and operator of wind farms in Maine. Their suit alleges that the Massachusetts law requiring utilities to buy renewable power from projects in the state is unconstitutional. That objection comes from the misapplication of the Dormant Commerce Clause law.

The United States Constitution contains a clause (Commerce Clause) that allows the federal government to regulate many aspects of business that involve commercial transactions between people in the various states. But within the Commerce Clause lays a concept that even if Congress has not acted, and even if its commerce power lies dormant, state and local governments cannot place an undue burden on interstate commerce. This concept is known as the Dormant Commerce Clause. Today, the Dormant Commerce Clause regulates two major categories of activity: 1) where the statute discriminates against out-of-state interests; and 2) where the statute regulates even-handedly to effectuate a legitimate local public interest and its effects on interstate commerce are only incidental.

**The RPS provisions must not appear to discriminate against out-of-state renewable energy facilities based on location**

The issue of the Dormant Commerce Clause becomes less clear in its application with respect to the enactment of RPS mandates requiring the purchase of renewable power from projects developed within a state to help meet the state's RPS mandate. On their surface, RPS provisions appear to pass the constitutional hurdles imposed by the Dormant Commerce Clause. An essential part of the analysis, however, is that the RPS provisions must not appear to discriminate against out-of-state renewable energy facilities based on location. The location of the facility or the source of the renewable energy must be irrelevant to the energy requirement. By focusing on in-state benefits rather than out-of-state generation, RPS provisions may prove to be one of the most efficient ways to increase the amount of renewable energy in a state. On the other hand, if state RPS mandates favor the purchase of power from in-state projects to the exclusion of out-of-state projects the law maybe discriminatory.

**The state is hanging its hat on the requirement that the PUC had to consider a report about the potential economic benefits for the state from the approval of this specific project**

It is this possible discrimination that is behind several of the lawsuits being brought against the Rhode Island law forcing the state's Public Utility Commission to approve the recently revised PPA. The law specifically described the offshore Block Island wind project and mandated its approval even if other, cheaper power alternatives were available. The state is hanging its hat on the requirement that the PUC had to consider a report about the potential economic benefits for the state from the approval of this specific project. Of course, the testimony stated that only six permanent positions would be created. Several hundred temporary jobs would be created due to the construction of the wind farm, but many of these positions would be located at plants along the Gulf Coast where the wind turbines would be built. The few permanent positions come with a nearly \$400 million price tag for Rhode Island ratepayers and when

**Utilities are finding themselves increasingly caught between public policy mandates pushing environmentally-friendly power supplies and flawed power-project economics that are raising consumer utility bills in the midst of a stressful economic environment**

**This timetable suggests it will be late this fall before any decision is likely**

**We anticipate that 2011 will present a markedly different landscape for offshore wind projects in the United States**

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there are cheaper power alternatives from natural gas-fired plants and a renewable power (wind) project in Maine.

In a recent Massachusetts DPU hearing, three National Grid executives were quizzed. One executive, Richard Rapp, was quoted as saying, "We deemed this to the best option" for meeting the strict new state laws requiring increased use of renewable fuels to generate electricity. Utilities are finding themselves increasingly caught between public policy mandates pushing environmentally-friendly power supplies and flawed power-project economics that are raising consumer utility bills in the midst of a stressful economic environment. The disclosure that Cape Wind has not been able to sell all its power and may have to shrink the size of its wind farm thereby raising the cost of power to National Grid and its customers may highlight the weakness in these new RPS mandates due to the high cost of alternative energy projects. The last chapter in the expensive Massachusetts offshore wind project has yet to be written.

In the Rhode Island wind project saga, the legal appeals will take time to be resolved as the Supreme Court cannot begin its consideration until the transcripts and all documents have been received from the PUC. That must occur within the 30-day window following the PUC's decision, so September 23<sup>rd</sup> is the due date. At that time, all parties involved in the appeals will be allowed to file pre-briefing statements. That will be followed by a conference between all the parties and one justice of the court. After the conference the Supreme Court hearing can occur followed by a few weeks for the decision to be rendered. This timetable suggests it will be late this fall before any decision is likely.

At the end of the day, one has to wonder whether either or both of these New England offshore wind projects will fail due to their poor economics. In the course of reaching the final decision points for the projects a lot of new legal ground will likely be covered, which either may create new hurdles for the renewables industry or clear away its impediments and threats. We anticipate that 2011 will present a markedly different landscape for offshore wind projects in the United States.