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## MUSINGS FROM THE OIL PATCH

August 30, 2011

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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 and planning for the future. The newsletter is published every two weeks, but periodically events and travel may alter that schedule. As always, I welcome your comments and observations. Allen Brooks

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### Marcellus Shale: The Glass Half Empty Or Only Half Full?

Reading press releases and writing news articles can lead to wildly divergent interpretations of the same information depending on the writer's knowledge of the subject. The latest examples are the news stories about the recently revised estimate of the volume of natural gas and crude oil contained in the Marcellus formation, which underlies a large portion of the mid-Atlantic region of the country. The latest resource assessment of this basin was posted on the web site of the United States Geological Survey (USGS), the official chronicler of the mineral resources of the country, early last week.

**The USGS determined that there is an estimated mean of 84.2 trillion cubic feet (Tcf) of natural gas and 3.38 billion barrels of natural gas liquids**

The Devonian Marcellus Shale, as the USGS calls it, spreads throughout the Appalachian Basin extending from central Alabama northeastward to New York State. The map in Exhibit 1 shows the extent of the basin that was the USGS focus in its assessment of undiscovered oil and gas deposits there in the Marcellus formation. The USGS determined that there is an estimated mean of 84.2 trillion cubic feet (Tcf) of natural gas and 3.38 billion barrels of natural gas liquids. This latest estimated resource potential is significantly higher than the USGS' prior estimate of 2 Tcf of gas and 0.01 billion barrels of liquids made in 2002.

**The USGS estimated that there could be as much as 144 Tcf of gas in the Marcellus, but with only a 5% level of confidence**

In preparing its estimate, the USGS calculates numerous scenarios but with differing levels of confidence in the numbers. In this case, the USGS estimated that there could be as much as 144 Tcf of gas in the Marcellus, but with only a 5% level of confidence, to as little as 43 Tcf of gas with a 95% certainty. The same was true for their natural gas liquids estimates, which ranged between a highly confident 1.55 billion barrels to a more speculative 6.2 billion barrels.

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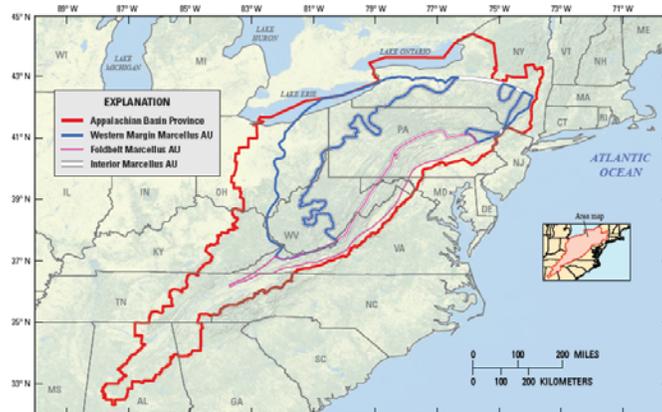
**Exhibit 1. Marcellus Shale Is A Significant Basin**

Figure 1. Map of the Appalachian Basin Province showing the three Marcellus Shale assessment units, which encompass the extent of the Middle Devonian from its zero isopach edge in the west to its erosional truncation within the Appalachian fold and thrust belt in the east.

Source: USGS

**Bloomberg News titled its article on the press release “Shale reserve estimate slashed”**

To understand our point about reading press releases, a writer for the Associated Press produced an article used by many newspapers that hyped the view that the USGS now believes there is substantially more gas in the Marcellus shale than it previously believed. That is definitely a true statement. On the other hand, Bloomberg News titled its article on the press release “Shale reserve estimate slashed.” This is also true. How can both be true you ask? We explained how the first story could be true since between 2002 and 2011 the USGS did dramatically increase its estimate of undiscovered hydrocarbon reserves in the Marcellus.

**The new USGS estimate is about 80% less than the official estimate made by the EIA earlier this year**

The slashing estimates article reflects the writer’s knowledge (or his research) that the new USGS estimate is about 80% less than the official estimate made by the Energy Information Administration (EIA) earlier this year. That agency published a study in July, authored by INTEK, Inc., titled “Review of Emerging Resources: U.S. Shale Gas and Shale Oil Plays.” In the report, the Marcellus shale was credited with 410 Tcf of “undeveloped technically recoverable shale gas and shale oil resources remaining in discovered shale plays as of January 1, 2009.” The study was dated December 2010, but the data and its conclusions were utilized by the EIA in the preparation of its Annual Energy Outlook 2011 (AEO2011), which is the official forecast employed by the federal government to estimate the future supply and demand of every form of energy consumed in this country.

The AEO2011 suggests that as shale gas resource estimates have more than doubled since the AEO2010 report, gas production should grow almost fourfold and eventually account for 47% of the nation’s 2035 estimated total natural gas production, which in turn will have grown by 25% over that time period. One impact from this gas production growth is that future prices will not reach anywhere near as high a price as earlier AEO forecasts projected. The

**We doubt many readers paid any attention to the EIA's cautionary warning**

AEO2011 report suggests gas prices in 2035, based on 2009 dollars, will average \$7.07 per thousand cubic feet (Mcf), but could be as low as \$5.35 because of the greater gas supply.

In the preliminary version of AEO2011, the EIA acknowledged the risks to estimating potential resources. They wrote that "Over the past decade, as more shale formations have gone into commercial production, the estimate of technically and economically recoverable shale gas resources has skyrocketed. However, the increases in recoverable shale gas resources embody many assumptions that might prove to be incorrect over the long term." We doubt many readers paid any attention to the EIA's cautionary warning.

At the time the AEO2011 was released, the increase in the Marcellus shale resource potential was considered not only valid, but possibly conservative since there were other estimates by acknowledged students of the formation that exceeded the EIA's estimate. The most noteworthy forecasts have been prepared by Dr. Terry Engelder at Penn State University. His most recent estimate said there was as much as 500 Tcf of gas in the Marcellus shale, nearly 20% more than the EIA estimated and six times the new USGS estimate.

**It will force everyone to question what the USGS sees, or doesn't see, that everyone else assumes as gospel**

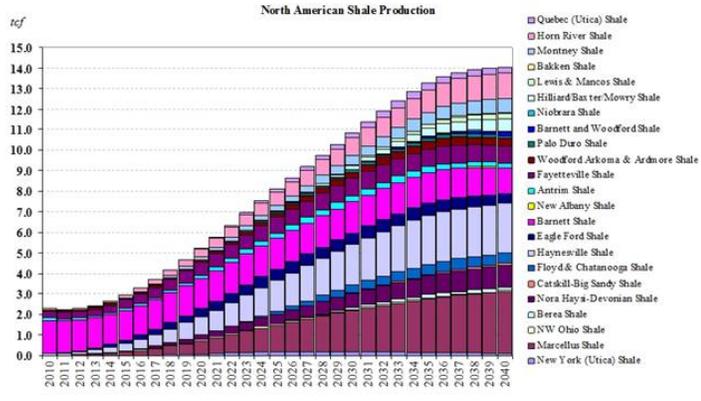
The new USGS estimate will call into question all the optimistic projections for the Marcellus. It will force everyone to question what the USGS sees, or doesn't see, that everyone else assumes as gospel. Moreover, the EIA has already indicated it will incorporate the USGS estimate into its figures, cutting the Marcellus resource assessment by 80% and total U.S. gas shale resources by nearly half. Will producers who are active in the Marcellus pull back? The reserve cut will add further ammunition to the Securities and Exchange Commission (SEC) inquiry into the disclosure of reserves made by producers active in the shale gas plays in their federal filings and their investor presentations.

Another question is what happens to some of the academic and think tank research on the impact of the gas shale revolution on the industry and the nation's energy policy. For example, several studies have been prepared by the Baker Institute at Rice University dealing with these topics. One involved a presentation made by Dr. Kenneth Medlock, the James A Baker, III, and Susan G. Baker Fellow in Energy and Resource Economics at the Baker Institute Energy Forum, to the Dallas Federal Reserve Bank in 2009 and how the gas shale contribution has increased since then.

**Marcellus production growth is tied to its large resource potential and the assumed low-cost economics of the play**

In the Dallas Fed presentation of late 2009, Dr. Medlock presented a chart on shale gas production by basin in North America through 2040. As can be seen by examining the chart in Exhibit 2, the role of Marcellus gas production is significant as we move into the 2020 and after time frame. Marcellus production growth is tied to its large resource potential and the assumed low-cost economics of the play.

**Exhibit 2. Marcellus Had Significant Role In Supply**

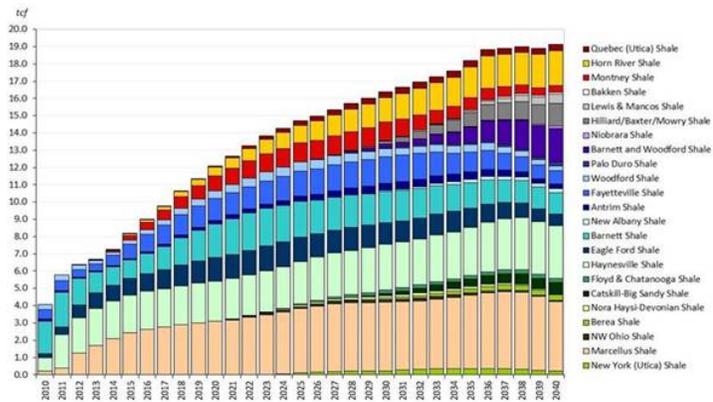


Source: Ken Medlock, Rice University

**Dr. Medlock projected that in 2040 total shale gas production will be 5 Tcf per day greater, or over a third more, than in the 2009 forecast**

This spring, Dr. Medlock gave an updated presentation at the American Association of Petroleum Geologists (AAPG) annual meeting in Houston. In this presentation, Dr. Medlock projected that in 2040 total shale gas production will be 5 Tcf per day greater, or over a third more, than in the 2009 forecast. Marcellus production at the end of the forecast period (2040) is projected to reach 4 Tcf per day, or more than a third greater than in the earlier forecast. Importantly, in a blog published on the *Houston Chronicle* web site in response to *The New York Times* investigative reports questioning shale gas estimates made by producers, Dr. Medlock highlighted that his research relied on USGS data for its projections. That would suggest Dr. Medlock will need to revise his model's forecast.

**Exhibit 3. The Role Of Marcellus Has Grown In Forecast**



Source: Ken Medlock, Rice University

Equally important, we are starting to see industry consultants question some of the critical assumptions made by gas shale producers about the ubiquitous nature of the resource and its low cost, translating into strong profitability for the companies. A case in

**They see the oilfield service companies beginning to capture much of the recent improvement in producer profit margins due to technology improvements in producing gas from the plays**

point is a recent report by industry consultant Wood Mackenzie Inc. It was clear from the report that they have become more cautious about the overall success of producers in gas shale plays largely because of the better understanding of the nature of gas shale deposits and the economics of producing them. They see the oilfield service companies beginning to capture much of the recent improvement in producer profit margins due to technology improvements in producing gas from the plays. The key cautionary conclusions of Wood Mackenzie are captured in the final paragraphs of its report.

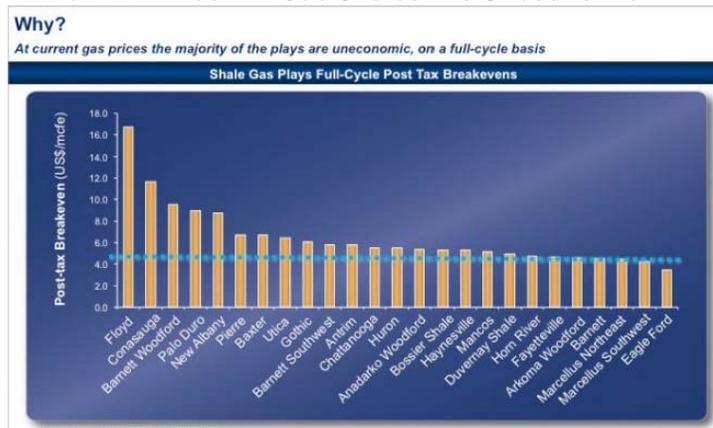
“Over time, it has become apparent that the original premise that shale gas plays offered limited to no finding risk has increasingly been thrown into question. While the hydrocarbon molecules may be present in the play, being able to produce them commercially remains a challenge. Additionally, while the plays offer long-life potential, this will only be realized through significant ongoing capital investment.

“Only the very best shale gas plays will have a long-term future supported by operational efficiencies, which will continue to advance, coupled with a new focus on applying subsurface science and technology, and will help to identify the sweet spots and yield more long-lasting results. The ultimate winners will be those companies that proactively screen shale gas opportunities, awaiting the coming market correction and executing on the best deals.”

**Wood Mackenzie believes the majority of gas plays are uneconomic**

The reason Wood Mackenzie believes there is a “coming market correction” is its conclusion that based on full-cycle economics, the majority of gas plays are uneconomic. In their calculation, it appears that only the Marcellus and Eagle Ford plays are safely profitable today.

**Exhibit 4. Almost All Gas Shales Are Uneconomic**



Source: Wood Mackenzie

As we have postulated for a long time, the existence of a huge gas

**What has been at issue for several years has been the economics of extracting the gas in a market that continues to be oversupplied**

shale resource is unquestioned. What has been at issue for several years has been the economics of extracting the gas in a market that continues to be oversupplied due to strong drilling by producers driving gas prices lower. Higher gas prices will come at some point in the future, but in our estimation it will largely be driven by producers reigning in their drilling, although likely coupled with some increase in demand. When might we see this market change? We guess it may start in the second half of 2012.

## **Obama Backs Electric Vehicles – Public Grows Skeptical**

**The President doles out federal money to this cast of characters in hopes of generating some of those illusive “green jobs” and cutting our greenhouse gas emissions**

The Obama administration continues to beat the drum for electric vehicles (EV), plug-in hybrids along with their battery manufacturing cohorts as the salvation for jobs and the environment. On almost every trip to the Midwest – land of the auto industry – the President doles out federal money to this cast of characters in hopes of generating some of those illusive “green jobs” and cutting our greenhouse gas emissions. The problem with his effort is that it is not going over well with the general public. They are not wild about being pushed into having to buy expensive EVs and plug-in hybrids, especially during dismal economic times and when the payoffs are potentially imaginary.

**“You can’t just make money on SUVs and trucks”**

Two weeks ago while on his Midwest “listening” tour, President Obama held a town hall forum in Cannon Falls, Minnesota. There he told the crowd, including auto workers, he and his advisors know best. “You can’t just make money on SUVs and trucks” he said. “There is a place for SUVs and trucks, but as gas prices keep going up, you have got to understand the market. People are going to try to save money.” Therein lies one of the major flaws in President Obama’s plan – the EVs he backs cost too much!

**The EPA rated the Leaf at 99 mpg, despite the fact it uses no gasoline**

General Motors (GM-NYSE), affectionately known as Government Motors because we, the tax payers, still own and control this company, has delivered on the first phase of its “new” business strategy designed to please its masters in Washington, D.C. The company introduced the Chevy Volt last December to glowing testimonials by auto writers employed by the mainstream media. The public was taken aback by the \$41,000 sticker price, but then again the car came with a federal tax credit of \$7,500. It was immediately blessed with a 93 miles-per-gallon (mpg) rating from the Environmental Protection Agency (EPA), although the car can only get about 35 miles on a single battery charge compared to the Nissan Leaf, all electric car, that gets nearly 70 miles per battery charge. Interesting, the EPA rated the Leaf at 99 mpg, despite the fact it uses no gasoline. Moreover, based on the manufacturer’s suggested retail price in 2011, the Leaf sells for 20% less than the Volt. That price gap will narrow based on preliminary pricing information for the 2012 model year as Nissan has raised the price

**Only 17% of “electric vehicle enthusiasts” were interested in the Volt, some eight percentage points below the spring survey**

of the Leaf by \$2,420 while GM has lowered the Volt's price by \$1,005. Still, the Leaf enjoys a 14% favorable price advantage.

Recently, CNW Marketing Research conducted a study of consumer buying intentions with respect to the Volt, and the results were not encouraging. The study was designed to measure buyer interest in the car now that the new model hoopla and marketing blitz have faded. In March, when CNW did its first study, it found that 21% of “early adopters” said they were very likely to consider the Volt. In July, that interest had shrunk to only 14.6%. A similar decline was recorded by “electric vehicle enthusiasts” with the latest survey showing only 17% interested in the Volt, some eight percentage points below the spring survey.

#### **Exhibit 5. Chevy Volt Lacks Appeal Due To Price**



Source: Steve Fecht for Chevrolet

**GM is holding to its forecast it will sell 16,000 Volts, including the Volt clone, this year and 40,000 combined units next year**

Through July, the Volt has sold about 3,200 units compared to the roughly 4,500 Leaf vehicles sold. Both manufacturers contend their sales figures would have been better except for the lack of supply due to the earthquake in Japan earlier this year. GM is holding to its forecast it will sell 16,000 Volts, including the Volt clone, Opel's Amperas, this year and 40,000 combined units next year. Given the soft economy and concern about further economic weakness, we wonder how well these forecasts will do given the cost of the Volt. CNW says that among mainstream consumers, only about 3% of new car buyers are likely to consider the Volt.

All of this brings us back to President Obama's fervor in pushing consumers to buy and auto makers to make EVs. In his Minnesota town hall talk, he said his administration had “turned around” the U.S. auto industry, but he said auto makers still need to change their ways. “They are gaining market share for the first time in years, but what we said was, ‘If we are going to help you, then you have also got to change your ways.’” That sounds like the old scary line – Hi,

**One automobile writer commented that the willingness of the auto makers to agree to the new standards is that there are so many loopholes in the agreement that it looks like Swiss cheese**

I'm from the government and I'm here to help you. That continues to be the mantra of this administration.

One way the Obama administration is helping is by getting the auto companies to agree to new, higher emission and fuel efficiency standards for 2017-2025. One automobile writer commented that the willingness of the auto makers to agree to the new standards is that there are so many loopholes in the agreement that it looks like Swiss cheese. We wrote at length in our August 16th *Musings* about many of these loopholes, or credits (the politically correct description), which may produce an actual average fleet fuel efficiency improvement some 20% below the announced target. EVs play a large role in lowering the realized mileage improvement.

The week before the President's listening bus trip, he dropped in on the Johnson Controls Inc. (JCI.PZ-NYSE) advanced battery facility in Holland, Michigan. The company, founded in 1895 by Wisconsin college professor Walter Johnson, began making temperature control devices. In 1901, the company started building cars and trucks powered by steam and six years later introduced gasoline-powered vehicles. The business was sold in 1912, but shortly thereafter the company entered the automobile battery industry.

Two years ago, Johnson Controls received \$299 million in federal stimulus grants to convert a Holland warehouse into an advanced battery manufacturing facility. At the same time as the President's visit, the government announced \$175 million in new federal grants to "accelerate the development and deployment of advanced vehicle technologies." Johnson Controls received another \$3 million.

**Michigan taxpayers' share of that cost will be about \$250,000**

President Obama had visited Holland in the summer of 2010 for the opening of the L G Chem advanced battery facility, another heavily subsidized venture. At the time, President Obama and then-Governor Jennifer Granholm (D-Mich) hailed the plant as a sign of "economic recovery." The approximately 400 jobs to be created by this new facility will only cost the taxpayers about \$625,000 each. Michigan taxpayers' share of that cost will be about \$250,000. This aspect of the federal grants is never explained to the public.

**At the time, Vice President Joe Biden announced that these grants would generate 19,000 high-paying jobs in Michigan**

In the case of Johnson Controls, their plant is supposed to create up to 550 employees when in full operation. Not surprisingly, that "up to 550 employees" was the same number touted in 2009 when the first grant was made. In May, the *Holland Sentinel* put the workforce at 70, and more recently, a *FOX News 17* story had it up to 75. The Johnson Controls \$299 million grant in 2009 was part of the \$2.4 billion federal stimulus money dedicated to battery-related projects in Michigan. At the time, Vice President Joe Biden announced that these grants would generate 19,000 high-paying jobs in Michigan.

A January 2011 *Detroit Free Press* article reported that all but one of the Michigan advanced battery operations has from a couple of

**All the battery companies claim that the higher employment targets will be reached when the “expected market growth for advanced batteries” kicks in**

dozen to 100 or so workers. The one exception is A123 Systems (AONE-Nasdaq) that hired its 1,000<sup>th</sup> worker on July 19<sup>th</sup>, just in time for the President’s visits. In 2009 when the federal stimulus grants were doled out, the press release from A123 Systems said the company expected to employ 5,000 workers. All the battery companies claim that the higher employment targets will be reached when the “expected market growth for advanced batteries” kicks in.

The issue is, as pointed out above, the poor sales numbers for EVs and hybrids. In 2010, according to J.D. Powers & Associates data, this class of vehicles only accounted for 2.2% of domestic auto sales. They project they will claim a 7.3% share of the global auto market in 2020, assuming continued government support – a critical ingredient.

**In 2009, A123 Systems received \$249.1 million in stimulus money**

So what is the success of the Obama administration’s effort to pick industrial winners? A123 Systems began life in 2001 supplying batteries to Black & Decker for consumer products. It eventually shifted its focus to advanced batteries for motor vehicles. The company’s start was helped by a \$100,000 Department of Energy Small Business Innovation Research grant in 2001. It won another grant two years later and in 2006 it got a \$15 million cost-sharing contract from the U.S. Advanced Battery Consortium. That contract eventually brought another \$12.5 million contract in 2008. In 2009, A123 Systems received \$249.1 million in stimulus money. It then got another \$17.3 million loan from the federal government in 2010. That same year, the company received \$238 million in state incentives from Michigan from the Michigan Economic Development Corporation 21<sup>st</sup> Century Jobs Fund.

**Despite over a quarter of a billion dollars in federal funding and a similar amount in state incentives, A123 Systems has yet to turn a profit**

Despite over a quarter of a billion dollars in federal funding and a similar amount in state incentives, A123 Systems has yet to turn a profit. The company lost \$80.5 million in 2008; \$85.8 million in 2009; \$156.2 million in 2010; and \$109.0 million so far for the first half of 2011 – in excess of \$425 million and counting. According to investment analysts, as reported on *Yahoo! Finance*, they expect losses to continue through the second half of 2011 and for all of 2012, albeit at a reduced level.

**With buyers being turned off by the Volt’s high price, we aren’t holding our breath for either A123 Systems to make money or Michigan advanced battery companies to create 19,000 green jobs**

A123 Systems’ share price has fallen steadily over the past two years from close to \$25 to slightly under \$3 just a few trading sessions ago. The stock then shot up by 45% in one day when it was announced that the company had been awarded a contract from GM to supply thousands of advanced battery packs in 2013 for a new EV. We now know that the new EV will be a Cadillac version of the Volt. We can’t imagine what the price tag will be for that model given the cost of a Volt. With buyers being turned off by the Volt’s high price, we aren’t holding our breath for either A123 Systems to make money or Michigan advanced battery companies to create 19,000 green jobs. This is yet another example of

**Exhibit 6. Creating Value While Losing Money Is Hard**

Source: Yahoo! Finance

government bureaucrats demonstrating poor judgment in picking industrial winners to back. But then again, when unions, the Obama administration's biggest supporters, are involved, the rules of the game change and markets have little weight.

## Racing Irene To Rhode Island – Quick Thoughts

**Lots of trucks were heading into Texas hauling rolls of hay, a sign of the drought's impact on the agricultural industry in the state**

What was planned months ago to be a leisurely drive to Rhode Island, including a stop to visit the Woodrow Wilson presidential library in Virginia, turned into a race to get there to prepare our house for a visit from the first hurricane of the year. When we left at midday Thursday, traffic on I-10, I-12 and I-59 was very light and we made the best time ever. One thing we did notice, however, was lots of trucks heading into Texas hauling rolls of hay, a sign of the drought's impact on the agricultural industry in the state and how troubles can create profit-making opportunities.

We also were intrigued by the sign on the back of a trailer truck in Mississippi. Clearly the company needs to hire more drivers. The sign said: [www.driveabigtruck.com](http://www.driveabigtruck.com), Home on Weekends. The appeal to being powerful by driving a BIG truck as opposed to a little one was evident, but the ad also acknowledges the social challenge for long-haul drivers of being away a lot. What could be better than being powerful and home on weekends!

**Was it poor management?**

We had no problem making a hotel reservation in Gadsden, Alabama, but that may have been because it was a weekday night. On the other hand, dinner at the Cracker Barrel in Hattiesburg, Mississippi was a head scratcher. At 6:15 pm, the waitress told us they were out of turkey, which happens to be their menu specialty for that day! Yet, while looking around the restaurant, it was barely over one-third full. Was it poor management or just them cutting

**We saw trucks with retailer names we assumed were hauling merchandise for the storm region**

back due to the economy and being caught flat-footed? They did come up with one order to make my p\*\*\*ed-off wife happy.

The next morning we saw a lot of truck traffic when we crossed the Tennessee border, which was probably due to goods being shipped north for the storm. We also saw two huge convoys of power company trucks – one from South Carolina and the other from Florida. We also saw three small convoys of National Guard troops heading north. All day the traffic increased with vehicles we began to conclude had elected to head north well inland from possible weather problems due to Irene's move up the East Coast. We saw trucks with retailer names we assumed were hauling merchandise for the storm region. There was also a convoy of three Allstate mobile claims offices on the shoulder while one van had its tire changed. We noticed a number of cars heading north with license plates of states targeted by the storm, suggesting people were racing to get home to prepare.

**We were shocked to find that two local gasoline stations were open when we arrived, and with a number of customers!**

While we had a room reservation in Hartford because we had renters in the house who were not scheduled to leave until 10 am Saturday morning, they called around dinner time to say they were going to leave rather than waiting until the next morning. As a result, we skipped Hartford and drove straight through to Charlestown, Rhode Island, arriving at 2:30 am Saturday morning. We stopped several times during the final 300 miles to fill up in order to make sure we arrived with an almost full tank of gasoline, remembering how Houston gas stations were cleaned out when Rita threatened. We were shocked to find that two local gasoline stations were open when we arrived, and with a number of customers! This was in contrast to a lack of panic existing in Connecticut. We heard, and later read Saturday in the local papers, Rhode Island stores had been cleaned out of emergency supplies (we're all familiar with that shopping list). In anticipation of that possibility, we had stopped in Knoxville to buy additional supplies we thought we might need. All in all it was an interesting trip. This article is being written and the newsletter prepared before the storm hits. We are in a mandatory evacuation zone so will be leaving shortly to stay with a relative who lives near-by.

## **Obama Plans Reorganization Of Climate Change Initiative**

**The new service would be designed to mirror the National Weather Service but deal with climate data, modeling and forecasting instead**

We haven't been paying too much attention to what has been going on in Washington this year as the melodramas all seem to have the same script. As the popular phrase puts it: Been there; Done that! However, our eye caught a small news item in the August issue of *Sea Technology* magazine talking about the political split in the House Science Committee during a debate last June over the National Oceanic and Atmospheric Administration's (NOAA) proposal to create a Climate Service within the agency. The new service would be designed to mirror the National Weather Service but deal with climate data, modeling and forecasting instead, along

**For fiscal 2012, NOAA is asking for funding to spend \$346 million on the climate service out of the total budget proposal of \$5.5 billion**

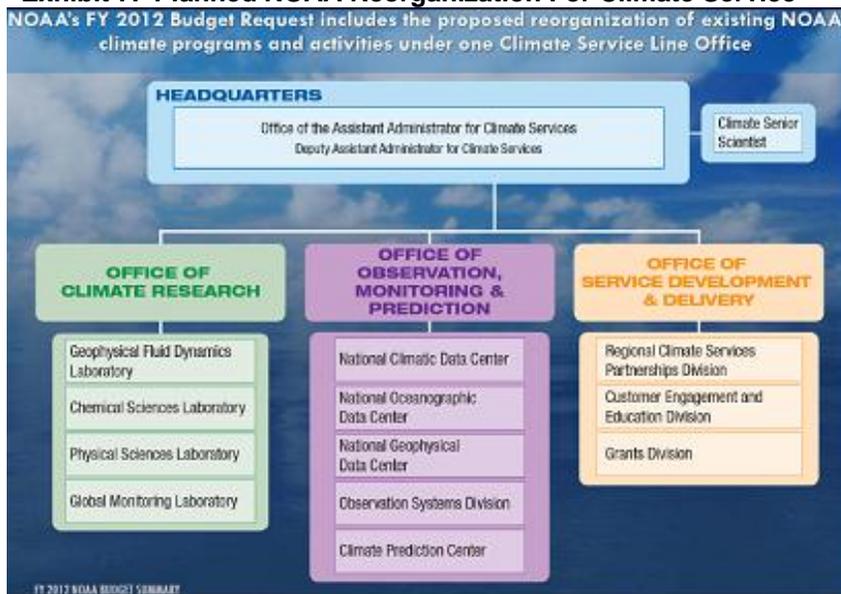
**NOAA would be better able to coordinate its climate research and data dissemination efforts**

with coordinating with state and local officials over how to prepare for future climatic events. According to the NOAA proposal, the new service would really be little more than a reorganization of all its existing climate efforts and not an increase in spending, staff or facilities.

To better understand the issue, we went to the NOAA web site and started looking into the proposed climate service. According to the article we had read, part of the debate, and probably the source of the political split, was related to spending associated with the climate service. For fiscal 2012, NOAA is asking for funding to spend \$346 million on the climate service out of the total budget proposal of \$5.5 billion. That didn't seem like a significant amount but we decided to check out the spending by looking at NOAA's funding request as presented by Dr. Jane Lubchenco, Under Secretary of Commerce for Oceans & Atmosphere & NOAA Administrator.

According to Dr. Lubchenco's presentation to the House Science Committee, the new climate service would provide a "single point of contact in NOAA to provide credible, useful and timely information products." The statement implies that by establishing this new department, NOAA would be better able to coordinate its climate research and data dissemination efforts. Yet, in the presentation the point was made that there would be no employees or facilities relocated or any additions to the staff. Therefore, the justification for the move is that there would be better command and control (to use a military term) of the climate science emanating from NOAA.

**Exhibit 7. Planned NOAA Reorganization For Climate Service**



Source: NOAA

To understand the political differences, the article cited the

**Rep. Johnson cited climate modeling results that suggest the extreme weather events seen in this country so far this year could become more common with devastating results for local economies**

comments of Committee Chairman Rep. Ralph Hall (R-Texas) and the ranking Democratic committee member, Rep. Eddie Bernice Johnson (D-Texas). Rep. Hall said he opposed the move because it would transfer resources from fundamental science to “mission-oriented research and service-driven products.” Rep. Johnson, on the other hand, cited climate modeling results that suggest the extreme weather events seen in this country so far this year could become more common with devastating results for local economies. In a nutshell, these two legislators and their positions on the climate service sum up the philosophical split that exists over climate change, nee global warming.

**Exhibit 8. NOAA’s Climate Spending Request Misleading CS FY 2012 Budget Request (\$ Millions)**

	FY 2010 Enacted	FY 2012 Base	FY 2012 Request	FY 2012 Request vs. FY 2012 Base
ORF	\$0	\$316.9	\$321.8	\$4.9
PAC	\$0	\$36.4	\$24.4	(\$12.0)
<b>TOTAL</b>	<b>\$0</b>	<b>\$353.3</b>	<b>\$346.2</b>	<b>(\$7.1)</b>

Source: NOAA

**The combined spending for research and climate for FY2012 is \$558.2 million, a 20% increase over the combined spending targeted for FY2011**

When we dug a little deeper into the spending side of the debate, we found that NOAA is actually proposing to spend less money (\$7.1 million) for climate science in FY2012 than suggested by the budget base line. Still the combined spending for research and climate for FY2012 is \$558.2 million, a 20% increase over the combined spending targeted for FY2011, and 24% greater than FY2010’s actual spending. Remember that the Congress has not approved a

**Exhibit 9. NOAA Budget Shows Hefty Spending Boost**

(\$ in millions)	FY 2010 Enacted	FY 2011 President’s Request	FY 2012 President’s Request
Oceans & Coasts	\$578.7	\$550.6	\$559.6
Fisheries	\$1,008.2	\$992.4	\$1,001.1
Research*	\$449.1	\$464.9	\$212.0
Climate*	\$0	\$0	\$346.2
Weather	\$999.8	\$1,003.2	\$988.0
Satellites	\$1,398.5	\$2,209.0	\$2,015.4
Program Support/Fleet	\$485.9	\$515.1	\$524.8
<b>Total (Net of Financing &amp; Transfers)</b>	<b>\$4,748.4</b>	<b>\$5,554.5</b>	<b>\$5,497.7</b>

\*Research and Climate budgets combined in FY10 and FY11

FY 2012 NOAA BUDGET SUMMARY

Source: NOAA

**The bulk of NOAA’s spending increase since FY2010 is represented by funds devoted to satellites – a \$617 million increase**

federal budget since FY2010. Instead, the Congress has funded the federal government through periodic spending authorizations – another one comes up for renewal at the end of September. (If you liked the deficit battle, get ready for the second round next month!)

Looking at actual spending over the past several years, we turned to the FY2011 budget submitted by President Obama on February 1, 2010. There we see the actual spending for NOAA in FY2009, the estimated spending for FY2010 and the President’s request for funding for FY2011. As we know from Dr. Lubchenco’s budget presentation, NOAA actually spent about \$5 million less in FY2010 than suggested in the FY2011 budget document. That meant NOAA’s spending increased by roughly \$295 million or a 6.6% increase. In contrast, of the projected \$750 million increase between FY2010 and FY2012, nearly 15% is represented by greater spending on climate services. The bulk of NOAA’s spending increase since FY2010 is represented by funds devoted to satellites – a \$617 million increase.

**Exhibit 10. Spending On Weather And Climate Rising Sharply**

	2009A	2010E	2011E
National Oceanic and Atmospheric Administration:			
Operations, Research, and Facilities .....	3,130	3,413	3,408
Procurement, Acquisition and Construction .....	1,242	1,358	2,184
Other Accounts .....	82	82	-38
Subtotal, National Oceanic and Atmospheric Administration .....	4,454	4,853	5,554

Source: Obama Budget 2011

**Given recent scientist behavior, hopefully this policy won’t be a repeat of the Obama administration’s January 2009 avowed transparency policy**

Another interesting item in the discussion about reorganizing of NOAA was an answer to a question about how the agency was “strengthening science” in the FAQ section on the NOAA web site dealing with the climate service. One portion of the answer said, “NOAA has been working to develop a scientific integrity policy that would ensure a continued culture of transparency, integrity, and ethical behavior in NOAA. The NOAA policy will be consistent with guidance issued by the White House Office of Science and Technology Policy in December 2010.” One wonders why a scientific organization such as NOAA would even have a question about “transparency, integrity, and ethical behavior.” Given recent scientist behavior, hopefully this policy won’t be a repeat of the Obama administration’s January 2009 avowed transparency policy.

**Its motive has to be questioned given the increased concentration of climate change power within NOAA**

So while the debate over funding goes on, the fate of the climate service remains in limbo. It was killed during the funding debate for FY2011. If it is killed this time, the fate of the climate service is probably sealed. While the climate service is presented in a somewhat benign manner, its motive has to be questioned given the increased concentration of climate change power within NOAA.

We found it quite interesting to compare this unfolding climate organization drama with that of the already established climate organization in the UK. In a reader’s comment on a UK blog

discussing the sharply rising cost of electricity, he commented that he twice tried to get a response from his elected official (MP) without success. As a result, he decided to write to the Department for Energy and Climate Change. He received a response, from which he extracted the following paragraph.

“UK emissions are 2% of global emissions hence the UK on its own will have little impact. Our future security and prosperity therefore depends on effective international action to tackle climate change. We need others to act, but in order to encourage them to do so we need a credible domestic story to tell, and we need to lead by example.”

**Is the climate service the Obama administration’s attempt to create a “credible domestic story to tell?”**

The writer further commented, “So our future prosperity depends on us setting a good example by taking wholly ineffective and unnecessary action. Anyone notice just a teensy-weensy flaw in this plan?” We wonder whether the creation of a climate service within NOAA is the Obama administration’s attempt to create a “credible domestic story to tell?”

## Slowing Global Growth Portends Pressure On Oil Prices

**The various oil forecasting organizations – IEA; the EIA and OPEC – have acknowledged the potential for considerably slower demand growth than their models currently project**

As we wrote in our last Musings, the various oil forecasting organizations – the International Energy Agency (IEA); the Energy Information Administration (EIA) and the Organization of Petroleum Producing Countries (OPEC) – have all either introduced reduced global growth projections into their oil demand forecasting models, or have acknowledged the potential for considerably slower demand growth than their models currently project. The prospect for more oil supply due to the impending end to the civil war in Libya with the capture of Tripoli, the capital city, by the rebels, coupled with a growing concern about the health of the European banking system due to the sovereign debt crisis has helped push down oil prices. So far it appears that U.S. oil prices (WTI) have fallen more than the global marker (Brent), but that trend reflects the locational challenges facing domestic crude oil that are aggravated by the volume of crude oil being shipped south from Canada.

**Last month car sales in India fell for the first time in nearly three years**

The lowered global growth forecasts are due to expectations of much weaker second half economic activity in Europe and the United States, carrying over into a slower than previously anticipated recovery in 2012. Now, however, we are beginning to see signs of growth problems in Asia – the one bright spot for global growth. For example, the recently reduced estimates of the number of cars that will be sold in the world have primarily been as a result of weak U.S. and European sales. Last month, however, car sales in India fell for the first time in nearly three years. Likewise, China’s car sales grew at a paltry 3.6% last month despite expectations of strong single digit or low double digit growth. Auto makers remain resolute that car sales will not experience the type of collapse they did during the financial crisis years, but that comfort comes because the U.S. and

**China's car output is equal to the combined output of the United States, Japan and Germany, but most are low-end vehicles and only about 3% are exported**

Europe are running at structurally lowered levels of output than before the last crisis so any downturn should be limited since collectively they represent only 40% of global output.

Barely a month ago, an article in the *Financial Times* pointed out some interesting facts about the China car industry. China's car output is equal to the combined output of the United States, Japan and Germany, but most are low-end vehicles and only about 3% are exported. It is also interesting that China imports more cars than it exports, but the details of that trend are illuminating. In 2010, China exported 544,900 units, many of them commercial vehicles. The value of the average passenger car exported was below \$6,000 explaining why they appeal to buyers in markets such as Algeria, Iran and Vietnam. The cars China imports tend to be the leading import brands of the world – Mercedes and BMW. The significance of the import/export mix is that due to the joint ventures China has mandated for auto companies, technology is being transferred to its local manufacturers meaning the Chinese industry could become a global export force in the future, helping to reshape the global auto industry. The timing of that impact will depend on the pace of the development of its domestic market.

**What is interesting, and potentially troubling, is that Asia-Pacific with an estimated 31 million units for 2011 represents over 41% of the global total**

Recently, in response to the slowing global economy, auto sales forecasters have been reducing their projections for sales in 2011. Goldman Sachs cut its estimate from 82 million units to 80.2 million. Likewise, J. D. Power & Associates reduced its projection to 75 million from its prior 77 million unit estimate. What is interesting, and potentially troubling, is that Asia-Pacific with an estimated 31 million units for 2011 represents over 41% of the global total. On the one hand, a recent article by the managing editor of *Automotive News China* described his visit to Chengdu, the capital of southwest China's Sichuan province. He was there to attend the ceremony for the introduction of the Baojun 630 passenger car, the first of the Baojun brand, which is a joint venture between GM and Shanghai Automotive Industry Corporation (SAIC). This model is targeting customers in China's second- and third-tier cities, which the venture has populated with 120 dealerships. The car retails for 62,800 Yuan to 73,800 Yuan (\$9,758 - \$11,467).

**Exhibit 11. GM's Baojun 630 Car Model**



Source: GM

**The problem was GM's two joint venture companies that make many small vans popular in rural China, but where sales incentives have been eliminated**

Should China and India continue to struggle in selling new cars, the global market could be at risk of a shortfall against expectations. In July, GM's and its joint venture companies' sales in China fell 1.8%. That decline was despite very strong sales of GM's Buick, Chevrolet and Cadillac brands. The problem was its two joint venture companies – FAW-GM and SAIC-GM-Wuling – that make many small vans that are popular in rural China. These sales fell 40% and 14%, respectively, as China has eliminated sales incentives for small vans. For the first seven months of this year, GM's sales have totaled 1.4 million vehicles, up 4.4%, which compares quite favorably with the national sales gain of 3.4%.

Sliding auto sales and reduced projections likely could translate into lower gasoline and diesel fuel sales. The offset may be that even though fewer people are buying new cars, many of them may rely more on public transportation, which would boost fuel consumption.

**There appears to be a battle underway between NDRC and MIIT over the future of "green cars" in China**

In China, however, there is another auto industry drama unfolding having to do with electric vehicles. There appears to be a battle underway between the National Development and Reform Commission (NDRC) and the Ministry of Industry and Information Technology (MIIT) over the future of "green cars." In July, NDRC's head referred to the "hopeless" prospects of the country's "garbage technology" for electric cars. That was countered by a former MIIT official who pointed out that Beijing wasn't built in a day. This debate highlighted the comments made in last month's issue of *Qiushi*, a leading Communist Party magazine, by Premier Wen Jiabao. In that issue he wrote, "It remains uncertain whether hybrid and electric cars, which are now the focus of much of the development, will be the winners in the end." He cited a list of problems including "problems with their technical path, problems with core technologies, problems with investment, and problems with policy support."

**Since March 2010, BYD has sold a total of 53 e6s (its showcase electric car)**

In 2010, China announced it planned to spend about 100 billion Yuan (\$15.6 billion) to put 20 million "green" cars on China's roads by 2020. A year later, it appears China's leaders are rethinking that commitment. So what has happened to electric and hybrid cars? The poster child for the industry is BYD (BYDDF.PK), a Shenzhen-based company that received huge attention when it was revealed that Warren Buffett's Berkshire Hathaway (BRK.B-NYSE) had taken a 10% stake in the company.

Since March 2010, BYD has sold a total of 53 e6s (its showcase electric car). Almost all the sales have been to a taxi company in Shenzhen, 45% owned by BYD. The company does appear to have done better with its plug-in hybrid model F3DM. Since that model was launched in February 2009, BYD has sold 365 of them.

Shenzhen today has a fleet of 1,107 electric or hybrid vehicles on its roads – 50 taxis, 618 buses and 439 private cars. The Chinese

**While the Chinese rethink their investment plans and commitment to electric and hybrid vehicles, we wonder whether President Obama and his advisors are doing likewise**

government's goal for 2012 is to increase the number of electric or hybrid vehicles on the roads to 35,000, of which it expects 25,000 will be owned privately. While the Chinese rethink their investment plans and commitment to electric and hybrid vehicles, we wonder whether President Obama and his advisors are doing likewise. We would guess not. Instead, we envision them cogitating on what regulations and mandates can be put in place to force Americans to buy the electric and plug-in hybrid vehicles made by the government-controlled General Motors.

## UK Power Market Encounters True Cost Of Green Energy

**Dutch emissions in 2010 were 6% higher than in 2009, but remain 1% below the level of 1990**

Late last week, the Dutch Government's Central Bureau of Statistics announced that the country experienced the first increase in CO<sub>2</sub> emissions in seven years despite consistent efforts to reduce its use of dirty fuels. Emissions in 2010 were 6% higher than in 2009, but remain 1% below the level of 1990 at the time government agreements were made under the Kyoto protocol. Based on those agreements, the Dutch need to cut their emissions by 6% between 2008 and 2012. The increase in emissions was attributed to one of the coldest winters on record and the recovering economy.

**The emissions rise was the result of a cold winter and improving economic activity**

The European Union (EU) had announced earlier this year that CO<sub>2</sub> emissions were up 3.5% after having fallen by 11% in 2009. The EU, like the Dutch, acknowledged that the emissions rise was the result of a cold winter and improving economic activity. It appears that only the southern tier of European countries that are members of the EU escaped higher emissions. Both Portugal and Spain saw their 2010 emissions fall by 15% and 12%, respectively. In the UK, emissions were up 2.8%, the largest increase in the past 20 years. Given the economic problems of the southern tier of Europe, we are not surprised to see them post lower emissions totals.

**If natural gas prices fall, DECC says that green taxes will increase industry's electricity price by 29% to 58% as expensive renewable energy accounts for a greater share of power generation**

With emissions on the rise and facing the prospects of failing to meet the Kyoto protocols, the pressure is growing for EU member countries to more rapidly embrace green energy and carbon capture. Late last month, the UK Department for Energy and Climate Change (DECC) estimated the potential increase in electricity rates over the next two decades. Unfortunately, DECC's estimates did not spell out all the assumptions in their determinations so many industry representatives remain skeptical about the conclusions. If natural gas prices fall, DECC says that green taxes will increase industry's electricity price by 29% to 58% as expensive renewable energy accounts for a greater share of power generation. If gas prices rise, then green energy becomes more competitive and may only boost prices by 14-16%. In the case where natural gas prices remain flat, the rise in electricity costs will approach 7-30%.

These green energy taxes may become quite significant according to one energy consulting firm. It believes green energy taxes now

**Under the program, any company or public sector organization that consumes 6,000 MWh of energy per year must register its power usage**

account for £15 (\$24) out of a £82 (\$134) per megawatt-hour (MWh) average cost for power. The firm estimates that further green taxes and infrastructure costs will lead to these charges accounting for nearly 38% of the total cost of power in 2020. At that point, the consultants estimate power will cost £130 (\$212) per MWh and the various green taxes will account for £50 (\$81) of that MWh cost.

For British businesses, however, the scary thing is the requirement they partake in the Carbon Reduction Commitment initiative. This means they must declare their energy use and be subject to a charge for every ton of greenhouse gas. The declaration must be made by September 30<sup>th</sup>, although the existence of this body and its reach into the business community has not been well publicized. Under the program, any company or public sector organization that consumes 6,000 MWh of energy per year must register its power usage. Beginning next April, the companies will need to buy permits for each ton of carbon they emit. If a company uses only 6,000 MWhs, its fee will be £38,000 (\$61,900). Companies and organizations using larger amounts of power will pay fees higher with the largest users reaching fees of £100,000 (\$162,895).

Estimates are that there are about 4,000 companies and organizations that need to register by September 30<sup>th</sup>. As of about two weeks ago, only 1,229 had registered. If a company misses the registration deadline, there is an immediate fine of £5,000 (\$8,145) and £500 (\$814) for each day after that, up to a maximum of £45,000 (\$73,303).

**The fees from failing to comply could make this program a huge moneymaker for the British government**

At a later date, another 15,000 companies and organizations will need to register and be subject to fees in the future. Since the CRC program's existence has not been well publicized and it is complex, there are estimates that upwards of 35% of all companies and organizations needing to register will miss the deadlines. The fees from failing to comply could make this program a huge moneymaker for the British government. We fully anticipate the UK will be held up as exhibit number one when, and if, a carbon tax and credit program is created in this country. In many states in this country, we are already on the road to exploding electricity bills due to renewable mandates designed to create a green energy world but with little to show for them.

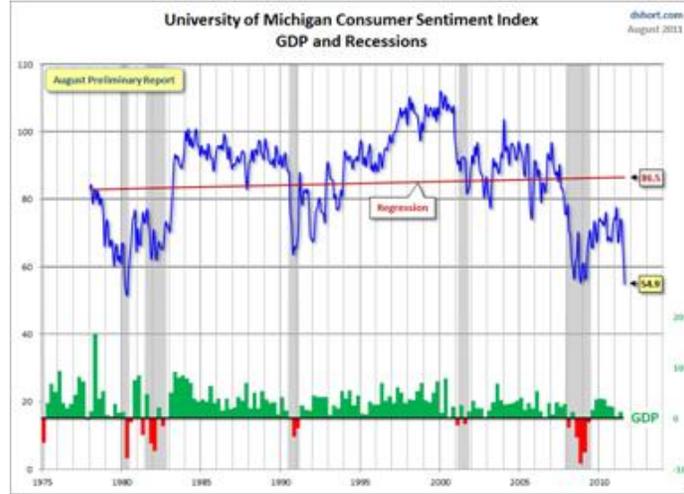
## **Another Bad Sign For Energy - Auto Sales Forecasts Cuts**

**The consumer sentiment index shocked observers when it fell by almost nine points to 54.9 from July's 63.7 reading**

The collapse of consumer confidence over the future of the economy has sent shock waves throughout financial markets and the political world. The latest Thomson Reuters/University of Michigan consumer sentiment index shocked observers when it fell by almost nine points to 54.9 from July's 63.7 reading. Importantly, it marked the second large consecutive monthly decline as the July index had dropped from 71.5, or nearly an eight point fall. The fear conjured up by the collapse of the consumer sent many forecasters back to

the drawing board to revise their thinking about car sales for the balance of 2011 and the impact a weak second half of the year could have on next year's sales.

**Exhibit 12. Consumer Sentiment Now At 1980s Low**

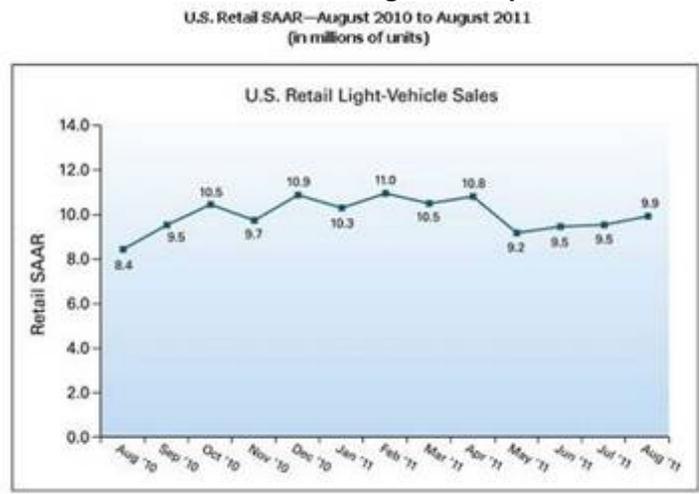


Source: Seeking Alpha

**Through July, retail sales of light vehicles have risen to 7.39 million units, an increase of 11% over last year**

Through July, retail sales of light vehicles have risen to 7.39 million units, an increase of 11% over last year. The leading auto market research firm, J.D. Power & Associates, estimates that the seasonally adjusted annual rate of retail vehicle sales will be 9.9 million, up from 9.5 million recorded in June and July. Their estimate of actual sales for August is 898,000 vehicles compared to 892,195 sold in July. The reading of consumer attitudes coupled with rising inflation and continued high unemployment suggest these estimates could prove optimistic.

**Exhibit 13. Auto Sales Showing Little Improvement**



Source: Automobile News

**These two firms' forecasts are now below the projections of both General Motors and Ford, which remain above 13 million units for each year**

**He was somewhat shocked at the resulting estimate, and suggested the industry would be, too**

**Importantly, the demographics that supported those high sales volumes are no longer as favorable**

J.D. Power cut its light vehicle sales estimate for 2011 by 300,000 units to 12.6 million and their estimate for 2012 was reduced by 600,000 to 14.1 million cars and trucks. Another automobile research group was even more pessimistic when it revised its numbers. IHS Automotive reduced its 2011 forecast by 200,000 to 12.5 million units. It slashed its 2012 forecast by a whopping 1.2 million units to 13.5 million. It reduced its 2013 estimate to 15.0 million, down some 500,000 units. These two firms' forecasts are now below the projections of both General Motors (GM-NYSE) and Ford (F-NYSE), which remain above 13 million units for each year.

The J.D. Power and IHS Automotive estimates are now more in line with the 12.6 million unit projection made by *Automotive News* senior editor John Teahen in early July and that we commented on in the July 19, 2011, *Musings*. His was a SWAG (scientific-wild-ass-guess) based on looking at the proportion of full year sales represented by the first six months during 2001 to 2010. Mr. Teahen applied that same methodology to the first half sales this year and came up with his number. He was somewhat shocked at the resulting estimate, and suggested the industry would be, too. It now appears following another month of data that wise students of the auto industry are reaching the same conclusion as Mr. Teahen, even though they do not like the conclusion as he predicted.

The new sales forecasts contrast with annual average light vehicle deliveries of 16.8 million units over 2000-2007 according to Autodata Corporation, an auto market research firm. While many auto industry executives cling to the belief that these historical high annual sales figures represent the industry norm, they were generated in an era marked by cheap credit, rapid economic growth, low unemployment, optimistic consumer outlooks and homes that functioned as slot machines for funding all sorts of consumer purchases. At the moment, we only have one of these ingredients – cheap credit. Importantly, the demographics that supported those high sales volumes are no longer as favorable. We have fewer numbers of teenagers seeking their drivers' licenses at the same time America's aging population is growing with negative consequences for car ownership and use.

Wall Street auto stock analysts have also lowered their car and truck sales estimates for this year and next, which of course drive the analysts' earnings forecasting models. Goldman Sachs (GS-NYSE) is at 12.8 million units for 2011, but cut its next year's estimate by one million to 13.5 million. JP Morgan (JPM-NYSE) has arrived at the exact same sales forecasts for 2011 and 2012 after cutting their prior estimates by a combined 700,000 units. RBC Capital's (RBC-T) auto analyst made a modest cut to his 2011 estimate and a slightly more drastic cut to his next year projection. After reducing the 2011 and 2012 forecasts by 200,000 and 700,000 units, respectively, RBC is now more conservative than the other firms with estimates of 12.5 million and 13.3 million units.

If we do not experience a snapback in consumer sentiment and/or a pickup in economic activity quickly, these light vehicle sales estimate reductions may be only the first of many over the coming months.

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