



# The Master Resource Report

An educational service of [Ravenna Capital Management](#)

Volume 7, Issue 3, Jan. 20, 2012

RCM Master Resource Index **13,484.70**



## Fuel efficiency

The EIA recently gave an upbeat report on the improvement in auto and light truck fuel efficiency. The excerpt that follows outlines those improvements and gives an estimate for improvements over the next couple of years.

*“As Corporate Average Fuel Economy Standards increase, motor gasoline-related vehicle fuel economy is expected to continue to improve. The U.S. Department of Transportation's Summary of Fuel Economy Performance reports estimated increases in the average vehicle fuel economy of cars and light trucks in use at 0.5 percent per year and 0.6 percent per year, respectively, between 1999 and 2009. Advances in vehicle fuel economy have been especially pronounced in the last few years. Between 2000 and 2005, new car and light truck average fuel economy increased by 6.3 percent and 3.8 percent, respectively. Between 2005 and 2010, average new car fuel economy improved by 11.9 percent while that for light trucks increased by 14.0 percent. EIA expects average fleet fuel economy of vehicles in use to improve by an average of 0.9 percent annually in 2012 and 2013.”*

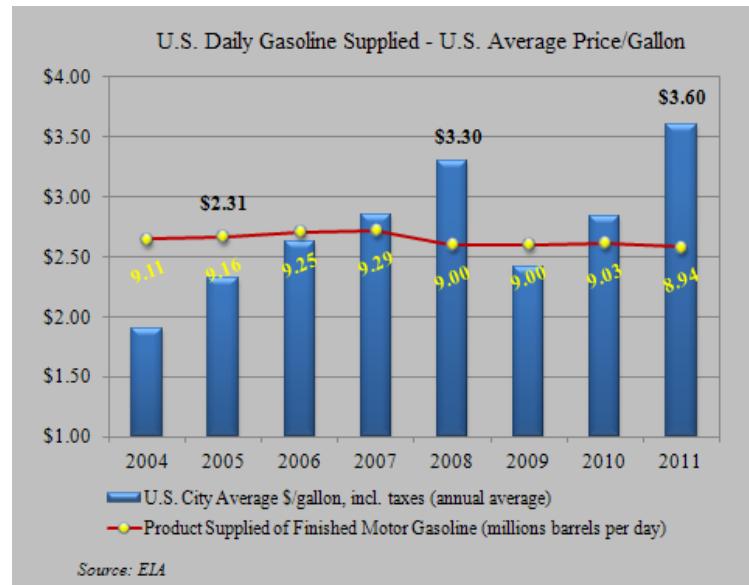
It is great news that vehicles in the U.S have improved their efficiency by double digit amounts since 2005. Of course as the graph on the right reminds us the average price of gasoline in the U.S. has climbed from a 2005 price of \$2.31 per gallon to \$3.60 per gallon in 2011. That is a 56% (\$1.29/g) increase in price. The annual growth rate over the six year period ending 2011 was 7.7%.

An average annual rate of fuel price increases exceeding 7% makes the EIA's expected 0.9% annual improvement over the next couple of years look a little weak. This also helps explain why a very large portion of the decline in total consumption has to be coming out of fewer miles driven and not from consumers buying smaller more efficient vehicles.

For the average vehicle mileage to improve U.S. consumers must either buy new cars or scrap their older less fuel efficient vehicles. The data however indicates they have been hanging on to vehicles longer with average vehicle ages at a record over 10 years. Decreasing fuel consumption through improving vehicle efficiency will take years and money. The money may prove to be a big hurdle as consumer spending may remain constrained for some time to come. The tough question to answer now is whether it was behavioral changes due to the higher fuel cost or the weak U.S. economy that will keep consumption subdued in the near future.

On the cost side it is worth considering that back in April when the average year-to-date price of gasoline in the U.S. had climbed over \$4 per gallon U.S. consumers were spending over \$1.5 billion per week on fuel. Average daily consumption in April was 9 million barrels per day running very close to the 8.94 million barrel per day average for all of 2011. By the end of the year though the weekly fuel bill had fallen to \$1.24 billion per week down nearly \$250 million per week as a consequence of lower prices and less consumption. This can go a long way to explaining why the economy softened in the spring and then began to show life in the fall as the drag of fuel expenses waned.

So why is the price of gasoline up so much when demand is running below the 9 million barrel per day average for the last 8 years. The biggest contributor to higher prices is that oil is not under \$30 per barrel like it was at the start of 2004. Oil makes up about [66% of the cost of a gallon of gasoline](#). But of course it is never that simple so the next piece will look at distillate and its impact on refinery outputs.

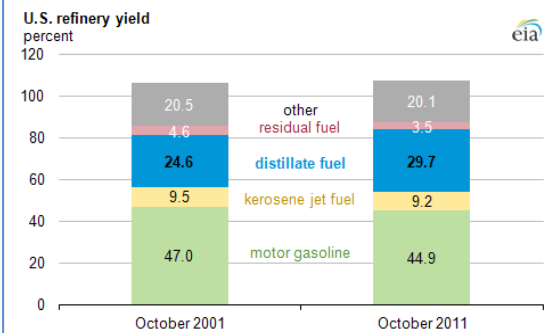


## Distillates drive the market

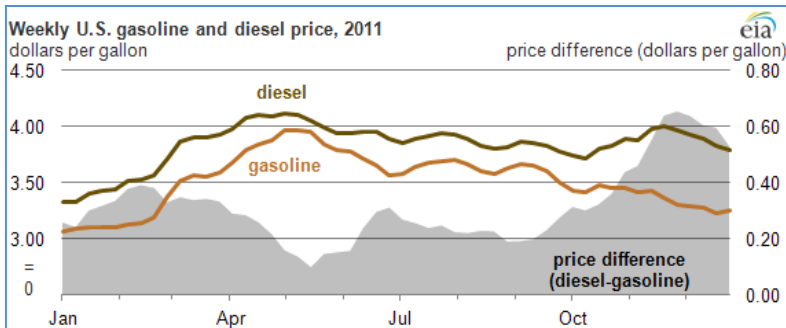
U.S. refineries have responded to both the demand and the price increase seen in diesel over the last decade by squeezing more diesel fuel out of every barrel of oil. The graph on the right from the EIA illustrates that point.

But even this 20% increase in distillate gallons per barrel of oil has not helped bring diesel back below the price of regular gasoline. This was a relationship that many of us remember from the past when diesel (including heating oil) sold at a substantial discount to even regular gasoline. [*jet fuel production is also down over 3%*]

## Distillate yields at U.S. refineries are rising



Source: U.S. Energy Information Administration, Petroleum Supply Monthly and Petroleum Supply Annual



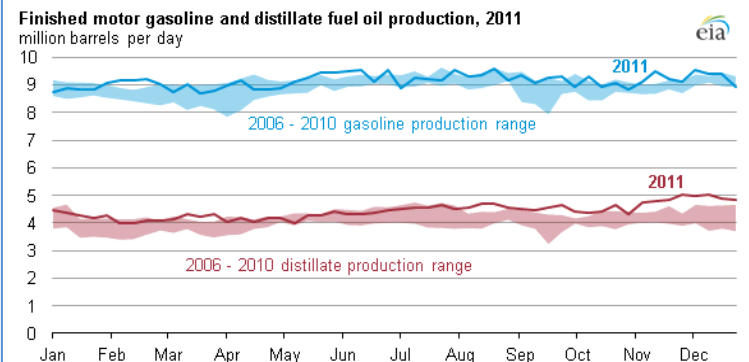
*"The gap in the prices for gasoline and diesel reached a record 66 cents per gallon in late November. The price difference increased the most during the fourth quarter of 2011. As summer transitioned to winter, refiners were able to switch to making winter fuel blends. Unlike summer blends, which must meet cleaner Federal burning specifications to decrease summer smog pollution, winter fuel blends cost less to refine and thus the resulting gasoline is less expensive. Gasoline demand was also about 4% lower in the fourth quarter compared*

*to the same period a year earlier. Demand for distillates, which includes diesel fuel, was up 5% during the quarter."*

So even though the domestic demand for gasoline is down 6.4% the reduction in refinery output and the increased exports have help support the price. Remember all those article this report has mentioned extolling the virtues of the U.S. being a net exporter of refined fuels? Maybe it is not such a good thing.

The graph on the first page illustrated that U.S. gasoline's annual average consumption base has held surprisingly stable in the 9 million barrel per day level since 2004 despite the price increase. A very rough estimate of a 6.4% drop in refinery output based on a 9 million barrel per day base would require a demand drop of about 500,000 b/d to remain roughly in balance. When refining changes are combined with increased net exports they appear to be balancing the impact from weaker consumption supporting the price well above \$3 per gallon.

## U.S. refineries and blenders produced record amounts of distillate fuels



Source: U.S. Energy Information Administration, Weekly Petroleum Status Report

Now consider what is going to happen in the months ahead if domestic consumption begins to rebound. Demands for increased consumption will only be met by competing for those barrels of gasoline and distillate now being exported. That is right you will be competing on price as much with your neighbor as a user in Latin America or Asia.

**Note: To go to each of the EIA reports that support these graph just click on the graph.**

## Surprise Surprise

This report has mentioned a number of times that oil exporters like Russia, Iran, Venezuela, United Arab Emirates and Iraq needed an oil price near \$100 to balance their budgets. *"The International Monetary Fund estimates that Riyadh needs at least \$80 a barrel to balance its budget, up from about \$50 a barrel in 2008. Only a decade ago Saudi Arabia was able to balance its budget with oil prices averaging \$20-\$25."* Now it appears that Saudi Arabia likes triple digits prices as much as their exporting brethren.

Monday during a CNN interview Saudi Oil Minister Ali al-Naimi made it clear that oil wasn't going back to \$50/barrel anytime soon as many have speculated or hoped. *"Our wish and hope is we can stabilize this oil price and keep it at a level around \$100" for the average barrel of crude, al-Naimi said.*

CNN indicated the \$100/barrel price *"is a departure from its target two years ago of \$75-\$80 a barrel, but one that he says producers and consumers can live with in today's climate."*

Ali al-Naimi also stated that Saudi Arabia could raise its production above the current 9.8 mb/d level if needed. *"I believe we can easily get up to 11.4, 11.8 (million barrels a day) almost immediately, in a few days, because all we need is to turn valves," Saudi Oil Minister Ali al-Naimi told CNN's John Deferios. "Now to get to the next 700 or so, we probably need about 90 days."* Of course if that is sour crude no refiner wants it really doesn't matter much does it.

If the Straits of Hormuz were closed for an extended period of time it won't matter how much oil the Kingdom can produce. It simply won't get to the global market due to the lack of transport option out of the Gulf. Remember it is the flows into the global net export market that matter, not reserves and not production. What would a two or three week supply gap of more than 5 million barrels per day do to markets and price. Maybe it is best we avoid thinking about that and stick with Ali al-Naimi's statement that they will not remain closed.

It is worth noting that during the interview he made no comment identifying how long the Kingdom could maintain a level of production above 10 mb/d without damaging its field's future production.

Maybe Oil Minister Ali al-Naimi was trying to say that Saudi Arabia would work to keep the price from escalating much beyond \$100/barrel and wasn't putting a floor on the price. However, that might be reading too much into his comments. The fiscal reality of all the major Opec players is \$100/barrel. Therefore it would seem prudent for importers like the U.S., Europe and China need to get used to triple digits.

### **Oil & Natural Gas are not the same thing.**

The U.S. is facing a staggering surplus of natural gas resulting in prices approaching \$2. So why isn't oil going do to \$20 too? With all the news that the U.S. is going to be energy independent because of all this cheap abundant natural gas why is oil still \$100/b?

The problem of course is they are not directly substitutable. If our transport system were based on electricity the gas could easily be brought on to reduce transport energy costs through lower cost electricity. But our system is based on liquid fuels derived from crude oil. It is ironic that the country's slow adoption of electric power in transportation now leaves it unable to capitalize on the cheap natural gas.

The oil & gas industry have been some of the biggest opponents to electrification of transport and it now finds itself unable to reap some of the benefits of their new found abundance. A bit ironic too isn't it?

### **Shale gas exports**

Recently the U.S. media has been gushing about how the huge supply of shale gas in the U.S. would soon usher in a boom in LNG exports into a global market at much higher prices. Well maybe the media needs to expand its view of the situation into the global market for LNG. There are other players looking at that same high price.

*"Mozambique and Tanzania may eventually rival Qatar and Australia as the world's biggest suppliers of LNG, Investec's Joyner said. The East African deposits found so far are large enough to justify construction of at least eight LNG production trains, according to estimates by the companies. Today Qatar has 14 trains operating, while Australia has at least six trains producing and about \$250 billion in projects under construction or planned."*

### **Are better batteries just more hot air?**

Two companies have recently made announcements about metal air batteries. Eos Energy is using zinc and IBM is using lithium.

*“...Eos Energy Storage said its grid storage battery will be far cheaper than other technologies, such as lithium ion or sodium sulfur batteries now used for grid storage. Its target price is \$1,000 per kilowatt and \$160 per kilowatt hour. Over the batteries' lifetime, that would make it comparable to the cost of pumped hydro plants or natural-gas turbines, according to the company.”*

The problem of course is that Eos Energy doesn't have a commercial scale product yet and is still raising money. Like many alternative energy projects it is still trying to get out of the lab and prove its commercial viability. The scale differences between the workbench in the lab and the power grid are huge so the failure rate will continue to remain high.

IBM on the other hand doesn't need to raise money at this point but it still confronts the problem of the right electrolyte and scaling the lab model to commercial size.

*“IBM researchers at four of the technology giant's laboratories are testing a lithium air battery. Dubbed the Battery500 Project, the lithium air batteries swap heavy-metal oxides for carbon, which reacts with oxygen to create an electrical charge. It's considered the holy grail of electric vehicle technology because it offers a theoretical energy density more than 1,000 times greater than the typical lithium ion battery you'll find in a Nissan Leaf. But it's also highly unstable.”*

In both of these cases commercial products if all goes well (when does that ever happen?) will probably appear near the end of the decade. Which brings us back to the liquid fossil fuel problem so often mentioned in this report; the solutions do not synchronize with the problem. The next couple of decades will be filled with both great progress and great frustration as the transition away from fossil fuels stumbles along.

### **How many miles of pipe?**

WSJ article *“In the Southwest alone, the Interstate Natural Gas Association of America estimates the region will need 50,100 miles of gathering pipelines, which take gas from wells to processing plants, between 2011 and 2020, 31% of the total nationally.”* Yes there are opportunities outside the oil companies.

Rising cost of pipelines: *“Tom Zabel, a Houston lawyer representing LaSalle and other pipeline companies, said that costs to obtain rights of way have increased fivefold or sixfold in South Texas since the verdict in the Donnell trial.”*

Does either of these items sound like cheap oil and gas? There is much more to the price of oil and fuel than just the act of drilling a hole. Many of these infrastructure costs are rising as fast as or faster than the basic crude production cost.

***“When conscience is immobilized, public trust has disappeared. At that point, by default, institutions become omnipotent.”***

*~ Ray Dirks, “The Great Wall Street Scandal” 1974*

If you would like to **subscribe** to the mailing list, please [click here](#). *Put **subscribe** in the subject entry.*

To **remove** your name from the mailing list, please [click here](#). *Put **unsubscribe** in the subject entry.*

Questions or comments? E-mail me at [jim.hansen@kmsfinancial.com](mailto:jim.hansen@kmsfinancial.com) or call 206-363-7868 toll free 888-216-4800

### *Disclaimer*

*This publication is dedicated to the education of readers and is an information service only. While the editor is licensed to offer investments and investment advice, through KMS Financial Services, Inc. the information provided herein is not to be construed as an offer to buy or sell securities of any kind, is the opinion of the author and not endorsed by KMS Financial Services, Inc. It is possible at this or some subsequent date, the editor and/or affiliated parties may own, buy or sell securities discussed in this newsletter, or based upon information provided in the newsletter, or contrary to information provided in this newsletter. The information provided has been obtained from sources deemed reliable but is not guaranteed as to accuracy or completeness. We make every effort to provide timely information, but cannot guarantee specific delivery times due to factors beyond our control.*