API Conference Call on Gas Prices

Posted by Robert Rapier on May 23, 2007 - 11:12am
Topic: Supply/Production
Tags: american petroleum institute, gas inventories, gas prices, oil refineries, refining [list all tags]

On May 16th, I participated in another conference call with the American Petroleum Institute. The subject was gas prices. Since I am probably not the best person to challenge the API on gas prices, I put out an invitation at The Oil Drum for others to join the call. (The reason I am not the best person to challenge them is (1) I understand why gas prices are rising; (2) I work in the industry; and (3) I think prices should be even higher to spur conservation efforts). So, joining me on the call were 2 of my colleagues from TOD - Alan Drake and Chris Miller (Dryki). I will pull out some excerpts of our questions, but you can read the entire transcript here. I am told that they had some recording difficulties, so there will be no audio posted.

Here was the entire roll call, from the transcript:

> Bloggers on the call included Robert Rapier of The Oil Drum and R-Squared Energy Blog, Chris Miller of The Oil Drum and MaineCommonwealth, Alan Drake of The Oil Drum, Kristen Hays of The Houston Chronicle's NewsWatch: Energy, Geoffrey Styles of Energy Outlook, Jerry Taylor of Cato-at-Liberty, Byron King of The Daily Reckoning, and David Marino of Platts' The Barrel.

And here is the list of participants from the API:

WELCOME: Red Cavaney, CEO, API

HOST: Jane Van Ryan, API

PARTICIPANTS:
Rayola Dougher, Manager, Energy Markets, API
Ron Planting, Manager of Statistics, API
Bob Greco, Director, Downstream
Cindy Gordon, Manager, Refining Issues, API

I once again had a handful of questions that were submitted by readers, but since I asked the most questions on the last API call, I decided to let others get their turn before I jumped in there.

First off, some excerpts from Red Cavaney's brief opening talk, followed by some Q&A from those of us who represented TOD. (Note: There are some errors in the transcript which I corrected when I noticed them. For instance, at times questions were attributed to the incorrect person).

RED CAVANEY: A couple points I would make in terms of a lot of the claims that are out there and a lot of the activity: first of all, contrary to the claims that a number of critics are making, there is not any overwhelming evidence to indicate that refiners are withholding supplies or manipulating the market. In fact, if you look at the data, refiners are producing record amounts of fuel and they're doing that in response to record demand. Refiners have, in fact, been expanding capacity for some time. If you look at the last decade, we've added the equivalent of 10 new refineries and if you look at the announced capacity expansions which are to come on line between now and 2011, you're talking about an additional eight more refineries.

Since about 1976, all of our additions here domestically have been additions to existing capacity rather than green-field efforts and there's a reason for that. First of all, they are much less costly on a per barrel basis. Number two, they can be brought in at least half the time or even more quickly as a result of the fact that they're in environments and in areas where people are familiar with them and they understand the value that's brought to the community and the like. And then, finally, when you take a look at all this, it's the smart thing to do to be able to keep abreast of where the demand is, which is what we have been doing over the last decade. And the amount that's been announced, if it all comes through, will, in fact, keep us slightly ahead of demand there as well.

What we are concerned about is the signal we're receiving at the federal level. First of all, to make the kind of investments that are necessary to continue to invest in refineries and to continue to increase capacity, people need to see signals that indicate there's a predictable policy environment going forward.

I have asked for a list of the announced capacity expansions.

Byron King got in the first question - one on imports - and then Chris Miller got in the first question from the TOD group:

CHRIS MILLER: This is Chris Miller. I wanted to follow up on Red's statement about consistent policy. It seems to me that the gasoline producers are running flat out at a very high capacity and demand is going up very high as well. If, in fact, we are in a very tight market and there's not much flexibility – Matt Simmons had that searing summer of gasoline shortage outage article in EV World – what would a consistent policy look like if, in fact, we're banging around at very high levels of what we can do?

MR. CAVANEY: Well, the first thing is that what folks are looking for is an idea that gasoline and ultra-low sulfur diesel, in particular, are not going to be disadvantaged in the policy climate going forward over the next 10 to 15 years. If you're going to make these capacity additions, they're going to want to know that those additions are going to be able to realize the return on the investment that they make.

It's no secret the number of announcements that have been made about the number of bio-refineries – not only currently producing, but that are coming on over the course of the next two years – and the amount of activity that's in Congress focused on the second generation of bio-refineries, cellulosic.

> So if you add these which contribute to the volume, it's ultimately going into the gasoline, the tanks, for light-duty trucks and cars, to the mixed signals about...refining capacity, [saying] no we're going to penalize you because you're making too much money. Those things just don't create [a] healthy environment and we think it's a much better policy that...they be consistent and [end] up not necessarily having to do more in the tax code or otherwise, but just what we affirm what we heard so much about two years ago that efficient refining capacity and related infrastructure is important to serving the consumer and they just reaffirmed it.
>
> But we don't see much of that at all right now, particularly at least, in the House debate. We're hopeful that when the Senate considers that, we've heard some early comments that there may be a little bit more of the discussion about the value of consistency on our policy here.
>
> MR. MILLER: I guess the – where I'm coming from is the issue of if we start getting shortages, I just don't know how the policymakers are going to stay consistent.
>
> MR. CAVANEY: Well, the first thing is if you have tight supplies and, as I mentioned earlier, we have product available that we can get in here quickly without having a lot of constraints on it, that's going to keep products flowing to the consumer and hopefully take a little bit of the pressure off from cries that, I'm not going to be able to get the product when I want it, where I want it, and things like that. So that, to us, is the most important thing here in the intermediate term.
>
> Now, the other point is there are a number of refineries that are going to be coming back on line here. They're down for some of the normal schedule turnaround; others more extended periods of time because of the tightness in both the labor and in the engineering stream of product, and others of them are just refineries that have been running hard and had, whether it was a fire or some other incident that needs to be addressed.
>
> So we do have refining capacity sort of waiting in the wings and what we're hopeful – when we look at crude, it looks like the crude we've got in hand, Ron, is in fairly good order, I think about 11 percent above –
>
> MR. PLANTING: Eleven percent.
>
> MR. CAVANEY: Eleven percent above, so we're set when those will come back on and that's what we're keeping our fingers crossed and our backstop is additional product from abroad.

There was quite a bit of discussion on refinery maintenance issues, and then I jumped in with an observation I had recently made that was as of yet unexplained to me:

> MR. RAPIER: Hi, this is Robert Rapier. I'll let you guys know that I've got a handful of questions here again, so if there's a lull, call on me. I'll try not to hog the time. I'll be quiet to let everybody else get their questions in, but if you have a lull, call on me and I've got a question.

Prior to Hurricane Katrina, we regularly input over 16 million barrels a day into our refineries. I've got the EIA numbers in front of me. Since then, we've only hit that 16 million barrel mark twice, and our utilization post-Katrina has been down quite a bit. It seems to me there's some lingering issue there that I can't identify, but it seems like there is a Katrina-related problem there that's kept us from getting back up to where we were. Any ideas, any comments on that?

MR. PLANTING: This is Ron Planting. One thing that may be part of that is that we've had slower growth in petroleum demand in the U.S. In 2006, the total petroleum demand was about 20.6 million barrels a day, which was actually down from 2005. Also, I believe it took a while for some of those refineries to get back up and running after Katrina, even into 2006 there were still some that were trying to get themselves together.

MS. DOUGHER: Postponed maintenance was done as a consequence, we think, of Hurricanes Rita and Katrina, so part of that – (crosstalk)

MR. RAPIER: Right, and I know that because I had some experience with that, that maintenance was postponed [to meet immediate demand caused by Katrina outages]. I'm just looking at late summer 2006. We still weren't hitting the numbers we were in 2005. This year we're down from where we were last year.

MS. VAN RYAN: We may have to take a harder look at some of those numbers, Robert, and perhaps we could get back to you offline. Would that be all right?

MR. RAPIER: Yes. Specifically, let me give you a date. On July 1, 2005 the input was 16.5 million barrels. We've never hit that number again. So I'm just wondering if there's not some Katrina problem. And it may be like you say, it may be that last summer there were still some lingering problems, and we may see the inputs come back up to above the 16 million barrel mark this summer. That may be the case.

MR. PLANTING: This is Ron again. I think, as Rayola was saying, that there was kind of change in reaction with the refineries that were knocked out by Katrina and Rita. And the refineries that weren't affected kept running when they might have otherwise been doing maintenance. And maybe we're still seeing some effects from that, that they are finally catching up on some of that maintenance.

MS. VAN RYAN: Yeah, we'll definitely get back to you.

MS. DOUGHER: Yes.

MS. VAN RYAN: And it's hard to know too if there could be an impact from – maybe the blending stocks make a difference to – we'll take a look at the numbers and see what – if there is an explanation for that.

I think I have my answer for that, though. In watching the May 16th Senate testimony of Paul Sankey, he mentioned that BP has 2 of the 5 largest refineries in the U.S. running at half capacity. Furthermore, the units that they have down are the ones that allow them to process heavy crudes, which has forced them to run light crudes. Clearly this puts pressure on light crudes that would not have otherwise been there, helping to tighten up the light crude supply.

Geoffrey Styles then asked them a question on gasoline inventories. Alan followed up on their answer with another comment/question, which led to an extended discussion on the issue:

MR. ALAN DRAKE: On a related point having to do with inventory levels, during the Hurricane Rita evacuation from Houston, despite the fact that Houston is the largest single refining center in the nation, there were substantial gasoline shortages at the retail level, enough to strand thousands of people on the road and National Guard and so forth. And in the current very light inventory situation we're facing, what are the likely impacts if – we are also facing a hurricane season that is estimated to be 50-percent above average -- we have a major metropolitan area evacuation, which is a major spike in demand. How likely are we to run into large numbers of empty gas stations, and large numbers of stranded motorists?

MS. DOUGHER: Well, I think that Houston story was a bit complicated too by just the traffic alone and the evacuation that was done at the time, but Cindy Gordon, our refining manager might be able to provide some insight on.

CINDY GORDON: Yeah, sure. I mean, certainly the hurricane's compounded of 2005 were beyond a worst-case scenario for whether or just our industry or lots of industries around. And in post-assessments, what the industry has done not only together in trying to attempt to address different lessons learned and how things can be improved the next time.

We have held, as an industry, conference, as well as the government, but individually, companies are specifically reevaluating their plans so that hopefully next time around, if we ever do see something as devastating as we did in 2005, they can establish certain staging areas. We can't know about that. A trade association can't discuss that it in an aggregate, but companies themselves are actually looking at pre-positioning supplies. Whether that means to facilitate recovery of their facilities and operations more efficiently or staging fuel supplies in key locations that may be easily transferred or more readily available to move towards the areas in need if a situation like that happens again.

MR. PLANTING: Also – this is Ron Planting again – I think the results are just to the issue of getting electricity for service stations to run pipelines, things like that.

MR. DRAKE: I was talking about the evaluation prior to the arrival of the hurricane.

MR. PLANTING: Oh, I see.

MR DRAKE: Not the post – basically getting a million or more people out of harm's way.

MR. PLANTING: Right. But that is also something that has been looked at, right. I think there are companies who have blocked a lot of generators and done other things to –

MR. DRAKE: Well, electrical supply was not an issue until after the hurricane.

MR. PLANTING: Right, right.

MR. DRAKE: And I was talking about – you know, in the case of Houston I think.

MR. PLANTING: I understand.

MR. DRAKE: And I participate in the evacuation from New Orleans that went forward fairly smoothly. And we did not have the product shortages that they experienced in Houston. But with the light inventory in – let's say Miami and Fort Lauderdale have to evacuate, is there going to be enough gasoline available to get people at least far enough away that they are out of harm's way. And with the current light inventory, that seems like something perhaps – if you are not allowed under current law to discuss, you ought to ask for a change that would allow you to discuss that.

MS. GORDON: I think that is something again the companies are doing in making their decisions on independently. It's really not an industry call.

JERRY TAYLOR: Well, this is Jerry Taylor. Doesn't it – isn't it axiomatic that scarcities occur when prices don't match demand. I mean, in no matter how short inventories are, if sellers are allowed to price or interested in pricing in what the market will bear, scarcities don't occur. It seems to me we had shortages in use and what not because gasoline service station owners, for whatever reason – out of fear of the law or out of a conscience or what not, didn't price it at what the market would bear, ergo, things disappear. Or am I wrong about that?

MS. DOUGHER: Well, I think a lot of consumers went out and filled up their tanks, too, in advance of the hurricanes, and whether they use that amount or not. And a lot of these local stations just flat ran out with so much demand, they just didn't have the storage.

MR. DRAKE : I think even at $20 a gallon, many Houston gas stations would have sold out. Now, if you priced it at a hundred dollars a gallon, perhaps not.

MR. TAYLOR: You have some curious ideas about the elasticity and demand, I'll tell you.

MR. DRAKE: I drove eight-and-a-half hours of stop-and-go traffic to get out of New Orleans.

MR. TAYLOR: I'm sure you did; but unless my money is infinite, it doesn't matter. Prices do affect human behavior even those circumstances.

MR. DRAKE: They would have sold out at $20 a gallon, I strongly suspect; perhaps not at a hundred dollars.

MR. RAPIER: If I can follow up on both Alan and Geoffrey, I think here is what they are getting at. We – it's not just that inventories are light. I have tracked the inventories every week and you can see that the falling inventories directly correlated to the rising price. Price has gone up, as gasoline fell for 12 weeks in a row, it looks to me almost a certainty that we will go into Memorial Day with record-low inventories. And so I think what Alan is saying is it looks like the risk is much greater than it has been past years going into hurricane season here. We're going in there very, very low relative to previous years, the lowest ever in fact.

MS. DOUGHER: But the most recent statistics do show that that corner is being turned somewhat and the inventories are starting to build again, and imports are coming in, and

consumer demand has moderated somewhat. So I – you know, I don't know what it's going to look like in two weeks, but I think that situation could be vastly improved if more refiners could come on it.

MS. DOUGHER: But you may be right; we may be facing that in a couple of weeks, and we'll have record-low inventories heading into the hurricane season, but it's just – I think it's too soon to really know that for sure.

MR. MILLER: This is Chris Miller. I want to follow up on that same vein, and what I was asking Red earlier, the system, it seems to me, it's lacking resilience. And I guess my question is, what is going to – what have you talked about and discussed for when the scarcities do happen because sooner or later they are going to happen. So is that something your trade association has looked into?

MS. DOUGHER: Certainly the difference between supply and demand is very thin right now, but we are also at a global product market; it's not just a U.S. market for our refineries in terms of production; it's worldwide. And we continue to produce most of the gasoline we use here in the United States, about 88 percent or more. So we're in competition from, for supplies from around the world.

And I don't think we're going to run out of supplies; it's just a matter of what that price is going to be and how quickly we can ramp up our own production moving forward, and also improve our imports. I'm not as pessimistic as some looking out there. I'm not especially optimistic either. I'm not making any forecasts, but there is every reason to think the situation can improve as we move into the summer season.

Alan then got to prod them on his rail ideas:

MR. DRAKE: I have one that is a longer-term question, and it is only peripherally related to the topic, although it is related.

MR. DRAKE: You know, first of all the American Concrete Association rarely goes out and promotes substitutes for concrete. And I have noticed the API is at least endorsing weekly the use of ethanol. But what would it take for the API to endorse a building out technically mature non-oil transportation modes that could, for example, trade 20 BTUs of diesel for one BTU of electricity? You know, this would minimize a certain percentage of the U.S. population from oil prices entirely and leave more oil products available for the rest of the economy and the rest of the population.

MS. VAN RYAN: Alan, this refers to the light-rail proposal?

MR. DRAKE: Light-rail. Also electrifying our railroads. If you take freight off an 18-wheeler and put it on an electric railway, UP, Norfolk Southern, whatever, you trade BTUs of diesel for one BTU of electricity. And you also get major savings in the D.C. area, where you're based, off D.C. metro, WMATA. And you get also very comparable energy changes there as well in trading gasoline for electricity at a very high ratio.

MS. DOUGHER: Well, you know, our rail system is really stretched as it is right now. And part of the reason it is stretched is just the bio-fuels, to try to move those around because they can't be moved in the pipeline system. And I went back and I looked at

how much money right now from the federal highway trust fund is going to mass transit and some of that also going to the railroad administration, and it's about 18 percent of all of the receipts. So it's a significant amount of money.

MR. DRAKE: Well, it's supposed to 20 percent, but it's been cut down on every allocation. That was – the Carter administration thing was 20 percent, which has been cut down to 18.

MS. DOUGHER: That is right. And that is very significant when you look in terms of miles driven out there, that you don't have the ridership that you do in mass transit that you do in automobiles for example. So that is really up to local governments to decide, and it's also up to the marketplace to decide how are you going to distribute this product and what we're going to do. I mean, it's not very profitable right now, the railroad system. And you would have to really, really force a different fuel and force others in the marketplace to use the railroad instead of trucks. Trucks are faster; they have been better; they have been – (cross talk).

MR. DRAKE: Well, they also have right-of-ways that pay no property taxes. If you were to exempt the railroad right-of-ways from property taxes, that incentive alone – and I will point out that Warren Buffet has decided that railroads are major investment focus of his now.

MS. DOUGHER: Well, that may be. And I think, you know, it's not a real focus of the oil industry right now; we're very focused on refineries and on production and on policy to promote the efficient use of energy and to promote investment in new technologies, the broad range of technologies, and also to bring more supplies to the marketplace. And that is really our primary concern and our key focus as a policy moving forward.

MR. DRAKE: Well, that is what I ask, is what would it take for the API to endorse non-oil transportations as an alternative in certain areas?

MS. DOUGHER: Well, we already do endorse non-oil transportation in terms of using ethanol. We're embracing ethanol and we've increased – we have more than doubled the use of ethanol in the past year or more. Seven billion gallons this year will be used in the gasoline system. We have got 50 percent of our gasoline supplies had some ethanol in it. So we are embracing these fuels as we move forward, and we're investing an enormous amount of money in emerging technologies and renewable fuels, about a third of all of the money going into these different end-use technologies – it's being vested by oil companies. So they are out there; they are looking at a whole portfolio of fuels moving forward, not just oil and natural gas.

MR. DRAKE: Well, the heavy truck industry – inter-city heavy truck is using almost 2.5 million barrels day of diesel, and another quarter million or so by the railways. And eliminating that, or even a significant fraction of that could free up over a million barrels a day for other uses.

MS. DOUGHER: That would be really up to the market to determine that price. If it's not profitable now, it's hard to think it would be –

MR. DRAKE: We're moving property taxes.

MS. DOUGHER: But I think we are getting far a field from some of the subjects we

wanted to address here today.

Remind me to do my homework if I ever decide to debate Alan on his rail ideas. (Not that I would, because I think he is correct, but he certainly knows his stuff there.)

Chris then asked about the recent decisions by various states to suspend fuel taxes:

> MR. MILLER: Chris Miller here. I have got a quick question on something else. State policy – a lot of states are under pressure to reduce their fuel taxes. Where do you guys stand on that? What do you think about that?
>
> MS. DOUGHER: Well, I don't think it's a good idea because they have to continue to fund their roads in any event. And when they talk about – you know, some states have tried it. I think Florida did it a couple of years ago, and they'll reduce maybe a few cents or a nickel or a dime, or some are talking about just suspending it for the entire summer. But it masks the real supply and demand. It doesn't help consumers at all in the long run; it just takes off a few pennies off the cost during the summer, but sooner or later they are going to see that come back, and they are going to have less funds for their roads, so it's a real tradeoff there, and I don't think it's going to help consumers. I don't think it's a good idea.
>
> MR. MILLER: So you think, more or less, leave it as is as opposed to increase it perhaps?
>
> MS. DOUGHER: Sure. A lot of consumers know the prices, what the price is, and maybe they'll moderate their consumption and it will keep the supplies coming in. I don't think it's a good idea to artificially cut off your gasoline taxes when you still need them for your roads and for your infrastructure, so I don't think that is a good idea at all.

I then asked them to respond to allegations that despite record profits, refiners were not reinvesting in the business:

> MR. RAPIER: Robert Rapier. One more refinery question from me. I read a newspaper article yesterday that there was recent testimony of the EIA to the Senate, and they said that a historical lack of investment in infrastructure, predominantly refinery capacity, was a huge primary factor in rising gasoline prices. I've seen this theme repeated, that, you know, the refineries are falling apart and they're not investing money in them. Do you have some numbers to throw out there to rebut that?
>
> MS. DOUGHER: Oh, sure. Just last year alone they increased their investments by about 25-percent jump up to $9 billion. There have been cycles in the industry. It goes way back. It goes back to the '70s to price controls. When the lifted the price controls from the '70s, it had an impact on the refiners because then those tea kettle refineries, the little refineries, really couldn't afford to stay up and running, and they closed down fast because they were no longer subsidized.
>
> Then we had the Clean Air Act Amendments and lots of investment going into making

> new cleaner burning fuels. So the refineries that were left standing did a much better job of bringing product to market for a lot less money. The investment has moved forward, but it has not been a profitable end of the industry. It has not realized nearly the rates of return on investment that the upstream sector has, and for a long time there they realized about half the rate of return as, say, the S&P Industrials were earning.
>
> It has been an industry that has struggled for a number of years, and only just recently have the margins really started to improve. I think that they'd have to be sustained for a significant period of time to see massive new investments to continue to come in, and they need regulatory certainty moving forward, too, to make those investments. There's a lot at risk here in terms of policy, and you're right about the investment in terms of there has been not a lot of investment in the past, but there were really good reasons for that, as well.

Alan next asked about asphalt, which is a subject that has been popping up a lot lately:

> MR. DRAKE: Related to that, do you have any statistics on asphalt production? I've heard that that's being squeezed with the addition of new cokers and so forth to upgrade a product that would normally have gone to asphalt a few years ago, and is now ending up in gas tanks either as diesel or other products.
>
> MS. DOUGHER: I think you're right about that. We should get you information on that, if you'd like, but I don't have it off the top of my head right now. But you are right and it is a concern to roofers and anyone needing asphalt. There's been less of it available and we're turning more of the barrel into higher-end products than the asphalt, the bottom of the barrel.

Next Byron King asked about energy inputs into refineries. He said that he had heard that it takes 10-12 percent of the energy in a barrel of oil to refine it. The API didn't know, but I did so I answered his question. I told them that the number was correct, and that I had known this for a long time but couldn't say so on the record because of the reason I know - because I have access to proprietary energy models for one of our refineries. But recently this number was published in a paper by Alexandre Szklo and Roberto Schaeffer entitled "*Fuel specification, energy consumption and CO2 emission in oil refineries*." (1) In the paper, they write:

> Between 7% and 15% of the crude oil input is used by the refinery processes. For example, the two largest Dutch refineries in 1995 posted energy use at 7% of the crude oil feedstock. There are refineries in the USA with energy use at almost 15% of the crude oil processed (EIA/DOE). Actually, in recent years, energy use in US refineries has been virtually stable, ranging between 9% and 10% of the crude oil processed.

Chris Miller followed up on his previous tax question:

> MR. MILLER: This is Chris Miller. I want to follow up on my tax question again, maybe

for Ron. Prices have gone up what, more than a dollar or about a dollar in the last year or so, and demand has grown. What kind of increase in price or taxes would it take to reverse that growth by some number, say 5 percent?

MR. PLANTING: This is Ron, believe it or not. I don't have a specific number for that, but over the years we've seen gasoline demand grow. Over the last 10 years, say, half a percent per year was the lowest, 3 percent growth was the highest. A lot of that does relate to what people are paying for, and it also relates to recessions. I don't really have a specific number as to what would bring it to zero.

MR. MILLER: A wild guess?

MR. PLANTING: But we have seen very slow growth the last year or two because of higher prices.

MR. MILLER: Not even a shoot-in-the-dark guess?

MR. GRECO: Well, this is Bob Greco. I don't have a guess of that, but I can show you an example of the difficulties with this. When you look at the example in Europe, where you're roughly about 800 to 1,000 dollars a ton from a carbon tax standpoint, four or five dollars a gallon. The vehicle miles traveled are at a lower level right now, but the rate of increase is the same or roughly the same as it is in the U.S.

It's from a lower base, but at the same time people are driving more in Europe, just as they're driving more in the U.S., and that's in the face of what would be a politically infeasible level of gas tax in the U.S. So the answer is, that tells you that's a pretty big number – (laughter) – based on that type of response.

MR. MILLER: Fair enough. Thanks.

Finally, a follow-up on an earlier question on ethanol that I ended up answering:

MR. STYLES: This is Geoff Styles again. Could I just follow up on Bob's earlier comment a minute ago about ethanol because this whole question of the ethanol energy balance, I think, is actually still a pretty important question. The whole industry – owes Mr. Rapier a debt on this one because he has done, I think, yeoman work trying to straighten people out on this.

But what you see consistently out there is people in the ethanol community comparing their 1.3-to-1 positive energy return on ethanol to a 0.8-to-1 energy return on gasoline coming out of a refinery and asserting all over the place that that means that ethanol is a more efficient fuel than gasoline. I think as long as people believe that that's true, it's going to push us very far beyond the point where ethanol is actually attractive. Robert, do you want to throw anything else on that since you're the man –

MR. RAPIER: No, but I can answer that. I'll let the API take it, but yeah, I've addressed that many, many times because they are comparing an efficiency to an energy return. If you compare apples to apples, ethanol is 1.3-to-1; gasoline is about 10-to-1.

MR. STYLES: Exactly.

> MR. RAPIER: That's your 10 percent number, your 10-percent input to get your product out ends up being 10-to-1. And so your apples to apples comparison, gasoline is about 6 or 8 times as energy efficient as ethanol. [Note: To be precise, gasoline is really 4 or 5 times as efficient if you accept the 1.3 to 1 energy return estimate and throw in the crude extraction piece.]
>
> MR. STYLES: Robert, 10-to-1, does that include also the energy required in refining?
>
> MR. RAPIER: If you do the crude and the refining piece, you drop it down to about 6- or 7-to-1. I've gone through all the calculations.
>
> MR. STYLES: Because that's more in line with what I was thinking.
>
> MR. RAPIER: Right.

Final Thoughts - Chris Miller

I'm no petroleum expert; my interest was systems resiliency - what was the API thinking about upcoming shortages and what sort of policies would the petroleum industry like to see adopted then?

I felt disappointed by the answers. Reading the transcript, my questions were plenty clear. To me. But I suspect my questions simply "did not compute" as far as those on the call were concerned. What part of "tomorrow will not be like today" don't they understand? Yes, it's a very difficult concept - humans are not wired for paradigm shift.

I hope I'm wrong; I hope we have plenty of energy forever. But then again, even that good outcome would be a disaster, I mean how many cars can we fit on this planet? We're so far down the exponential growth curve than any outcome short of enumerating enumerating the 10 zillion names of God and our being immediately beamed up to nirvana is a disaster for the species and Gaia.

Shortages Don't Compute

Final Thoughts - Alan Drake

I am even more concerned about there being adequate fuel for hurricane evacuations than before.

Hopefully, Houston and New Orleans can tap into local refineries, but I wonder. The refineries will be shutting down and they may be shipping product out as quickly as they produce it (how many hours worth is kept on hand ?). Transporting product even 20 miles by truck can be challenging in an evac situation (truck drivers evac as well).

New Orleans had it's first warning at 10 PM Friday (>6% probability) and roads (and airport) started closing around 4 PM and all closed (AFAIK) by 5:30 PM Sunday. Saturday was the only day we had to refuel in New Orleans (all closed Sunday morning except one I saw) and almost all stations ran out, but there was barely enough for most everyone that wanted out. Few cars stranded on the side of the road. We may have a stronger tradition of keeping our tanks half full during hurricane season and "topping" up whenever one is about to enter the Gulf.

I have vague memories of the radio announcing where new gasoline deliveries were being made

on Saturday afternoon and evening.

Houston OTOH has almost 100 hours warning (at least 80 from memory). They have massive shortages and thousands of cars stranded for weeks on the side of the road (they were pushed off as they ran out). A couple of dozen people died of heat exhaustion.

Repeat Katrina and Rita with current stocks and the outcome does not look pretty.

Hypothesize Cat 4/5 with projected landfall on Ft. Lauderdale/Miami border. Or Tampa Bay, Jacksonville, Charleston or any major coastal city without local refineries and shortages and chaos will result. Cars stalled for lack of gas will slow an already slow evac process.

Many middle class people with cars will be stranded and frustrated and forced to ride out whatever comes. This is, IMO, an issue of public safety.

Best Hopes for no major hurricanes hitting major cities this year,

Final Thoughts - RR

Overall, I think this session was very informative, and I do appreciate the effort the API is making to educate the public. One of the problems that I can see is that many of us on these calls are already very knowledgeable about these issues, so it would be good to get some people on who are both influential and don't know as much about energy issues as they should. In particular, it would be nice to have some political leaders or staffers on the call, as well as some vocal opponents of the oil industry. After all, when they are explaining to me why prices are rising, they are preaching to the choir.

One thing I think they really were not clued in on is just what the gasoline inventory situation looks like. Yes, they knew it was low, but they felt like it had turned the corner and was on the way back up. Maybe, but we are still in a very, very low inventory situation and I did not get the impression that they appreciated this.

Reference

Here's your complete reference if you ever need to come up with an EROI for energy usage in an oil refinery.

1. Szklo, Alexandre and Schaeffer, Roberto, *Fuel specification, energy consumption and CO2 emission in oil refineries*, Energy Vol 32 pp. 1075–1092, May 17, 2006.

Note that the 10% they quote computes to a 10/1 EROI. In other words, for 1 BTU of oil, it takes 0.1 BTUs to refine it. 1 divided by 0.1 is 10. Contrast that with ethanol, where it takes 1 BTU to produce 1.3 BTUs of ethanol. So, you have an EROI for oil refining of 10/1 (reduced to probably 6.5/1 if you start with crude in the ground) versus 1.3/1 for ethanol. That's why ethanol from corn will always need subsidies to compete (or a very cheap energy input like coal).