# WORLD CRUDE-OIL PRICING

## HEARING

BEFORE THE

## COMMITTEE ON ENERGY AND COMMERCE
## HOUSE OF REPRESENTATIVES

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# WORLD CRUDE-OIL PRICING

**THURSDAY, MAY 4, 2006**

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ENERGY AND COMMERCE,
*Washington, DC.*

The committee met, pursuant to notice, at 10:11 a.m., in Room 2123 of the Rayburn House Office Building, Hon. Joe Barton (chairman) presiding.

Members present: Representatives Hall, Stearns, Gillmor, Deal, Whitfield, Norwood, Shimkus, Wilson, Buyer, Radanovich, Bass, Bono, Terry, Otter, Myrick, Sullivan, Murphy, Burgess, Blackburn, Markey, Pallone, Stupak, Engel, Wynn, Green, Strickland, Allen, Schakowsky, Solis, Gonzalez, Inslee, Ross, and Barton.

Staff present: Dave McCarthy, Chief Counsel for Energy and Environment; Maryam Sabbaghian, Counsel; Peter Kielty, Legislative Clerk, Sue Sheridan, Minority Senior Counsel; and Bruce Harris, Minority Professional Staff Member.

CHAIRMAN BARTON. The committee will come to order.

Today, we are going to have our hearing on world crude oil pricing. I want to thank our witnesses for testifying today.

We have Mr. Caruso, who is the Administrator of the Energy Information Administration. He has been guiding and advising the Energy and Commerce Committee for over 4 years now, and we are always appreciative to have him before us.

Dr. Daniel Yergin is recognized as one of the most highly respected authorities on international politics and economics in the energy field. We welcome you back to the committee again, Dr. Yergin.

The U.S. Government does not control crude oil prices, and the U.S. economy can't either. We are major players in the global market as consumers and as producers, but we don't control the price of crude oil in this country. Major developments in other parts of the world have brought the price to as high as $76 a barrel, and I think yesterday it closed at about $74 a barrel.

Let us take a look at some of the facts that we know.

As many months as it has been since the Katrina and Rita hurricanes, we still have 300,000 barrels a day in oil production in the Gulf of Mexico that is off line.

Iraqi production is increasing from where it was right after the war of liberation, but it is still below its pre-war peak and it is well below its potential.

There are many people that think Nigeria is becoming even more unstable, and its production is horrible, and many traders are taking account of that.

I am not even going to begin to talk about the President of Venezuela, Mr. Chavez, but there are many of us, including myself, who consider him to be quite a wild card.

And then we talk about Iran and their ability, or at least expressed intention, to make nuclear weapons. The response by the West to this troublesome mission raises more questions about stability of oil production in that nation.

Then we have OPEC. OPEC is the cartel that tries to set the price for oil in the world market, but I think our two experts before us today are going to indicate that, at least for the short term, they have lost that ability. Half of our imports come from nations that are members of OPEC.

Now let us look at the demand side.

This is where it gets even more amazing. In spite of the surge in gasoline prices in the United States in the last year and a half, demand for crude products or refined products made from crude oil is going up in the United States, including gasoline, although there have been some months recently that the demand for gasoline has gone down.

If we will look at China, their demand increase is incredible: up to half-a-million or more barrels per day in that one nation alone. Keep in mind that in a State like Texas where I come from, you have got more cars and trucks than people, but in China, there is only one car for every 200 people. Just think how their demand is going to grow as more and more Chinese demand that they have the same mobility that we have here in the United States. China's industrial sector is growing, literally, on a daily basis, and their demand for energy is increasing as their industrial sector grows.

We could say the same things about India, just at a slightly lesser degree than is going on in China.

I expect to hear today more on these geopolitical issues affecting crude oil prices and how much price they add to the barrel of oil. These oil prices and the geopolitical risks surrounding these oil prices concern me, as they concern all Americans.

Crude oil accounts for more than half of the price of a gallon of gasoline. And I think everybody on this committee and everybody in our country, including the suppliers of gasoline and crude oil, want gasoline

prices to go down. In the United States, whatever we can do, it is time for us to begin to do it.

At over $70 a barrel, the price of crude oil is four times the spot price on the day back in 1995, 11 years ago, when then-President Clinton vetoed drilling in ANWR. They say there are no short-term fixes, and I would agree with that, but if we had authorized drilling in ANWR 10 years ago, crude oil prices would not be, in my opinion, over $70 a barrel today.

Let me take a point of personal privilege aside from my written statement and just point out an amazing fact. Texas began to drill and produce oil on a large-scale basis in 1894 in Corsicana, Texas, which happens to be in my Congressional district. Since that day in 1894, when what we would now call the Chamber of Commerce of Corsicana decided to drill some water wells and instead found this stuff called oil, the great State of Texas has produced over 60 billion barrels of oil. It is currently producing a million barrels a day from over 200,000 wells. It is estimated that in ANWR the reserve for that one field is 10 billion barrels. The one oil field in Alaska is expected to have at least 10 billion barrels in the one discovery well. And in Texas, in 112 years, we have drilled over two million wells. We have produced over 60 billion barrels of oil. It defies rational explanation to me: drill what would probably be the largest oil field on the North American continent when we prove that we can do it in a safe environmental way.

The Energy Policy Act, which passed last year with bipartisan support, the majority of the Members on both sides of the aisle in this committee voted for it, included some provisions increasing supply, promoting conservation, and pursuing research into the next generation of alternative energy sources. But it didn't do as much as could be done because we didn't have the political consensus on issues like ANWR and drilling in the OCS.

I think that Congress can and should do more. I think we should do things like we did yesterday, once again passing refinery reform legislation on the floor of the House. I understand that some people feel like that particular bill was made without the proper vetting at the committee level, and I respect that, but sometimes you have got to do things in a quicker way than a normal legislative process.

A Saudi energy official not too long ago told me, "It doesn't matter how much oil we send you, you can't refine it, because you haven't built a refinery in this country in a generation." That is, unfortunately, sad but true.

Yesterday, we also had a hearing in this committee on reforming the fuel efficiency standards for automobiles. And maybe that effort will have to proceed without a consensus, too, although I hope not.

America seems to keep praying that we can just buy a ticket in the energy lottery and get the winning ticket without having to do anything other than that. Some people do win the lottery, about one out of a million, but most people don't. I don't think that we should put our prayers on winning an energy lottery. I think we need to do responsible things that make sense, like drilling in ANWR, like looking to the OCS and the moratorium areas, like trying to do what we can to get the oil shale that we have in the lower 48 into production. In the last 30 years in this country, because we have been unwilling, in my opinion, to do some things domestically, we have almost intentionally made ourselves dependent on the outcomes of what's going on in places like Nigeria, Iran, Venezuela, and various OPEC nations as we refuse to use our own resources.

North America has tremendous natural resources of all kind. If you equate our coal resources and our hard-to-get oil resources, we have more energy resources by a factor of three than Saudi Arabia does. It is time that we, in my opinion, use the political process to try to at least begin to rationalize and maximize the use of such resources before we become even more dependent on foreign sources.

America just is not likely to win the energy lottery by praying for deliverance from other people outside of our borders.

[The prepared statement of Hon. Joe Barton follows:]

PREPARED STATEMENT OF THE HON. JOE BARTON, CHAIRMAN, COMMITTEE ON ENERGY AND COMMITTEE

Good morning. I want to begin by thanking all of our witnesses for their time today. In particular, I want to recognize the witnesses on our first panel.

Mr. Guy Caruso, Administrator of the Energy Information Administration, has been guiding and advising the Energy and Commerce Committee since his appointment in 2002 and we are always very appreciative and grateful for his analysis and views.

Dr. Daniel Yergin is one of the most highly respected authorities on international politics and economics in the energy field. Dr. Yergin, we welcome you back to the Committee and look forward to your testimony.

The U.S. government cannot control crude oil prices, and the U.S. economy can't either. We are major players in a global market, but major developments in other parts of the world have brought us to $72 dollar crude. Let's take a quick look at some of the factors:

- 300,000 barrels a day in oil production are still off-line today because of Hurricanes Katrina and Rita.
- Iraqi production is increasing but has not reached its potential yet.
- Nigeria is increasingly unstable, and so is it's production, and traders don't know what to make of it.
- We all know how unpredictable President Chavez is in Venezuela. He's running for re-election there, but his interest in politics extends far beyond the borders of his country.
- And the great question about Iran's ability to make a nuclear weapon, and the response by the West, raises even greater questions about global energy supply.

- And there's always OPEC. While Canada is our top international supplier, half our imports are from the OPEC nations.

Now let's turn to demand. Sure, demand in the U.S. keeps increasing. But the grown in China's demand is incredible. China has one car for every 200 people. Just think about how their demand will grow when more Chinese get cars. And China's industrial sector is much more energy intensive, and less efficient, than ours.

India's growth adds another huge pull on crude oil markets.

I expect to hear more today on these geopolitical issues affecting crude oil prices and how much price they add to the barrel. These oil prices and the geopolitical risks surrounding these oil prices concern me as they concern all Americans. Crude oil accounts for more than half of the price of a gallon of gasoline, and we want gasoline prices to go down.

Here in the United States, we need to do what we can.

The price of crude at $72 is nearly four times the spot price on the day in 1995 when President Clinton vetoed ANWR. . They say there are no short-term fixes, and that's true, but authorizing ANWR 10 years ago would have dropped world crude oil prices today.

The Energy Policy Act passed last year, with bipartisan support, includes some noteworthy provisions increasing supply, promoting conservation, and pursuing research into next-generation alternative energy sources.

Congress can and should do more – like passing legislation on refinery permitting that was on the floor yesterday. I leave it to those who voted against more gasoline at lower prices to explain themselves, but I think that's going to be a tough vote to explain to America's drivers. People can't fill their tanks with excuses or run their cars on politics.

A Saudi energy official once told me "It doesn't matter how much oil we send you – you can't refine it because you haven't built refineries in a generation!" Yesterday we could not find consensus on putting teamwork and focus into the multi-agency process of permitting refineries, whether for gasoline, coal to liquid, or biofuels.

We also had an historic hearing yesterday or reforming the fuel efficiency standard for automobiles. Maybe that effort will have to proceed without a consensus, too, if a bloc of Members has resolved to block all progress everywhere.

America keeps praying to win the energy lottery. But, we pray to win the energy lottery when night after night we rest on approximately 10 billion barrels of oil resources in ANWR, at least 90 billion barrels of crude oil resources in the OCS and 2 trillion barrels of shale oil resource in our Western States. We have made ourselves dependent on the outcomes of situations in Nigeria, Iran, Venezuela and Chad and on OPEC disputes because we refuse to use our own resources. North America has tremendous natural resources of all kinds, but the government policies restricting access to these supplies means we're more dependent on foreign sources. America won the energy lottery, the government just has to buy the ticket and open up the resources for domestic production.

Many of us in the Republican party have pursued policies to expand our energy capacity. These efforts have been blocked by politicians for whom America's energy security is not a priority. It is time for our energy policy to increase America's energy supply through both traditional and alternative sources. *Let us act now to ensure that we have a plan for today and tomorrow*.

We invited today's witnesses to help us understand world oil prices. With that understanding, consensus on action might materialize. Again, I would like to thank the witnesses for coming.

CHAIRMAN BARTON. With that, I want to recognize one of my senior Democrats for an opening statement. Mr. Dingell is not here. Mr.

Pallone seems to be the only man on the upper table, so we will go to Mr. Pallone for a statement.

MR. PALLONE. Thank you, Mr. Chairman, and thank you for holding this hearing.

In the 6 years since the Bush Administration has been in office, gas prices have gone from $1.65 per gallon to $3.03 per gallon, and obviously, I would like to know why this happened. And I hope this hearing will go a long way towards furthering our understanding of how crude oil moves around the world and how that relates to gas prices.

I am also interested to know what factors we might need to pay closer attention to, including speculative and unregulated oil trading that might be keeping the price of a barrel of oil artificially high.

But my chief concern here is the effect of demand on the world price of crude oil. Has that continued excessive demand for oil kept prices high and led to price volatility? In other words, if we were to curtail our demand through efficiency, would the market be less susceptible to price shocks due to temporary supply disruptions? Would this help cure the situation in which prices would be more reliable, allowing American consumers to better plan their household budgets?

Mr. Chairman, I am also concerned about the impact of growing demand from China and India, which you, in fact, have mentioned in your opening statement. While the rapid industrialization of these countries does raise serious questions about world energy supply, this sort of discussion often neglects to mention that their combined demand pales in comparison with America's insatiable thirst for oil.

And this, then, leads us into discussions like the one we had yesterday in this committee when we considered CAFE standards, how to curtail our demand to keep prices steady and reduce our dependence on foreign oil.

Of course no discussion of crude oil would be complete without mentioning the fact that the global economy's current reliance on fossil fuels is causing another very serious problem that we need to confront now, and that is global warming.

Mr. Chairman, I look forward to hearing from our witnesses today. I want to sound a note of caution, however. The American people are not going to be impressed simply because the Majority can cite however many hearings they have had on gas prices or however many of the same tired ideas they have passed on the House floor. If we needed this many hearings to understand oil and gas markets better, why didn't we have them before we passed last year's energy bill?

The truth of the matter is that years of inaction from this Administration and this Congress have contributed to our present crisis. Rather than increasing fuel economy standards, this Congress gave out

SUV tax breaks for the biggest cars on the road. And instead of passing comprehensive energy policy legislation focused on efficiency and conservation, the Republican majority passed, and President Bush signed, a bill chocked full of giveaways to the oil and gas companies. And I think it is time to get serious about putting off our addiction to oil.

Thank you, Mr. Chairman.

CHAIRMAN BARTON. Thank you, Congressman.

Does Mr. Hall, the Subcommittee Chairman, wish to make an opening statement?

MR. HALL. I do, Mr. Chairman. Thank you. And thank you for holding this hearing. It is very, of course, important in our current situation with gas prices where as high as they are, that we understand exactly why that is.

We know that crude oil makes up about 59 percent of the price of a gallon of gasoline, and therefore, the price of crude oil significantly affects how much we pay for gas at the pump, so I really look forward to hearing from our witnesses today as they help us understand world oil prices, how they are established, and why they are currently so high.

I would especially like to welcome Dr. Daniel Yergin, Chairman of the Cambridge Energy Research Associates, a Pulitzer Prize winner, probably the most knowledgeable guy in the world about what we are talking about today, and a highly respected authority on energy policy and international politics and economics. He invited me to Houston one day to speak to a group of about 300 people, and there wasn't a person in the audience that didn't know ten times as much about what I was talking about as I did. So I felt pretty intimidated down there, but I was honored to be in your company. I have the honor of working with you before, with both of you, and I would just like to extend a warm welcome to you and to our witnesses.

Thank you for what you have done, what you are doing, and giving us your time today. We appreciate it.

Thank you, Mr. Chairman.

CHAIRMAN BARTON. Thank you.

Did Mr. Stupak wish to make an opening statement?

MR. STUPAK. Yes, Mr. Chairman.

CHAIRMAN BARTON. The gentleman is recognized.

MR. STUPAK. Mr. Chairman, thank you for holding this hearing.

I would like to welcome our witnesses. I look forward to hearing their views on crude oil markets and the effect on gas prices.

Gas prices are causing consumers significant financial hardship. Many Americans are now paying over $3 a gallon for gasoline. This summer, Americans are expected to pay significantly more at the pumps

than last summer. And crude oil prices have exceeded the previous record, reaching over $75 a barrel.

As Ranking Member of the Energy and Commerce Subcommittee on Oversight and Investigations, I have asked for the last eight months for hearings on the cause of high gas prices. I am pleased that the Chairman has finally realized that these hearings are needed. They are long overdue, and I wish we wouldn't hold them all in one week.

Many of my colleagues look at high gas prices and claim that gas prices are dependent on world crude oil markets that are out of control. They say, "There is nothing we can do." While some just chock up high gas prices to supply and demand, the American people want their elected officials to act.

Congress has a responsibility to make every possible effort to ensure that the markets and pricing practices are fair. Yesterday, the House approved legislation to give the Federal Trade Commission the tools to prosecute price gouging. I am pleased that the Republicans finally realized this legislation is necessary, and I look forward to working with them to improve the bill.

Just as we continue to work to protect consumers from gouging and predatory pricing at the pump, we must also investigate the effect that energy futures trading can have on gas prices. Currently, energy commodities traded on NYMEX, the New York Mercantile Exchange, receive significant oversight from the Commodity Futures Trading Commission, CFTC. However, energy futures trading that occurs off the market, commonly referred to as over-the-counter, OTC trading, does not enjoy the same oversight and transparency. Without effective oversight from the CFTC, there is no way to know whether energy speculators are basing their trades on market realities or are instead taking advantage of the system to make money at the expense of hardworking Americans.

Last week, as Americans were hit the hardest by record crude oil prices, the LA Times reported, in a piece entitled "Supply Fears, Fuel Speculators Pumping up Oil Prices." It goes on in the article. It says, "In an energy futures market wracked with concern that oil demand might outstrip supplies, traders call it petronoia, threats alone were enough to ignite prices."

A vast majority of the energy derivatives trading that takes place does not violate any laws and is actually helpful in allowing energy companies to keep their costs down by providing them with a reliable and consistent basis for doing business. However, when oil trader speculators, motivated by greed, take advantage of these market fears to drive up prices, the Federal government must intervene to prevent this manipulation from being passed on to the American consumer.

Due to these concerns, I have introduced the Prevent Unfair Manipulation of Prices Act, H.R. 5248, to bring over-the-counter trading under the oversight of the CFTC. As I am sure Mr. Levin, our witness from NYMEX, will tell us, the oversight provided by the CFTC to market trades on NYMEX has helped provide transparency, stability, and confidence in these markets. My legislation would provide the same oversight and transparency to over-the-counter trading.

As Americans continue to face sky-rocketing prices at the pump, our constituents are looking to their representatives to enact policies that protect them from manipulation and other unfair market prices. Hopefully, today is the beginning of many serious discussions about what Congress can do to ease prices at the pump.

I look forward to hearing from our witnesses.

Thank you, Mr. Chairman.

CHAIRMAN BARTON. Thank you, Mr. Stupak.

Does Mr. Whitfield wish to make an opening statement?

MR. WHITFIELD. Yes.

Thank you, Mr. Chairman. And thank you so much for holding this hearing to look more closely at one of the most pressing issues facing the country today, and that is gas prices, and specifically how the supply and demand of crude oil factors into the price paid at the pump.

As you know, Mr. Chairman, you and I have sent letters to the heads of five major oil companies in the last day or so, ExxonMobil, Chevron, ConocoPhillips, Shell Oil, and BP America, asking for detailed information about how those companies are allocating their profits to improve domestic and international oil refining efforts. You know, the easiest thing for us to do is to blame the oil companies for these price increases, and I know that many States are looking at price gouging and doing investigations right now. The Federal Trade Commission has been doing the same. But I think we all recognize that it is a lot more complicated than simply the oil price being manipulated by the oil companies.

We are consuming 85 million barrels of oil a day worldwide. In the United States, we are consuming between 21 and 22 million barrels of oil a day. We are the largest consuming nation in the world.

I would also point out that in the year 2000, ExxonMobil, as an example, was producing 733,000 barrels of oil a day. And in 2004, that was down to 557,000 in the United States.

I would also point out that during the years from 2000 to 2005, actual production declined in Saudi Arabia, Iran, Iraq, Nigeria, Venezuela, and Indonesia. And all of those countries face potential political problems that could end their production at any time. So there are a lot of factors out there that we cannot control.

I am particularly pleased to hear today that we are going to have testimony from the New York Mercantile Exchange, because all of us here are about part of the speculators, part of the marketplace, and I know their testimony will give the committee a better understanding of how their marketplace functions on a daily basis and what their platform means for energy prices.

I am also specifically interested in hearing about other energy markets and other trading platforms, which could have an impact on energy prices. More importantly, I think all of us are concerned based on our understanding of these other platforms, that the regulatory attention paid to them may be somewhat less than that received by NYMEX. If this is in fact the case, I know we will all be interested in hearing testimony explaining why that is the case. And if the additional regulatory oversight is necessary, especially given the importance of these markets in establishing prices for commodities used by all Americans and is impacting the price, then maybe we need to take additional steps.

Certainly, we look forward to hearing from the Energy Information Administration and the Government Accountability Office, and I yield back the balance of my time.

CHAIRMAN BARTON. We thank the Chairman of the Oversight Subcommittee.

Mr. Engel.

MR. ENGEL. Thank you very much, Mr. Chairman, for holding this important hearing today on world crude oil pricing.

As Americans continue to grapple with $75 barrels of oils and $3-plus gallons of gas, it is obviously helpful for us to hear from the experts on the current market forces that are contributing to these escalating prices. I share the frustration of the American people with oil and gasoline reaching $3-plus a gallon. I think the President of the United States, frankly, should call the oil executives into the White House and bang their heads together. The oil companies, frankly, are making record profits with very little extra work, doing nothing extra, but they are reaping these windfall profits. It angers me greatly when the CEO of ExxonMobil gets a $400 million golden parachute to leave and the average American can barely fill up his or her tank and has lots and lots of hardships. This is not something that should continue. Oil companies are making record profits, obscene profits, and frankly, as far as I am concerned, laughing all the way to the bank. And I am not against people making profits, but what is going on with oil and gasoline in terms of the cost to fill up your car going up and up is absolutely wrong.

Our Chairman, my good friend, made a point to mention that oil refineries have not been built in the country, and I think his point is well

taken. I think everything ought to be on the table. However, I am angered by the fact that when the price of a gallon of gasoline went up after Hurricane Katrina, we were told that because of the hurricane, the oil refining facilities in Louisiana were interrupted, and therefore, it sent the price of a gallon of gasoline up, but once those oil refinery capabilities were back in action, the price of gasoline would go down. And indeed, it went down for a few weeks, and now it's back up again to Katrina prices and even more.

So I don't really believe that the lack of building oil refineries is a major reason why gasoline is going up. I think it is manipulation, and I think, frankly, greediness on the part of the big oil companies. Now we consume nearly 21 million barrels of oil per day every day, and our appetite is increasing. We cannot be so completely dependent on a single, finite, and pollution-causing fuel. We need to change our habits. The President is right when he said we need to wean ourselves off of our addiction to oil, but it has got to be more than rhetoric. He has got to really put his money where his mouth is.

Now Congressman Kingston and I have teamed together to introduce the bipartisan Fuel Choices for American Security Act, H.R. 4409, which enjoys wide bipartisan support in the House and Senate. And very briefly, let me say, it encourages production and consumer purchase of oil-saving technologies and fuels nationwide without adversely impacting air quality. And the way we can do this is by providing incentives to encourage manufacturers, distributors, and consumers to utilize domestic resources to bring to the market a full range of 21st Century vehicles and fuels. We can go to biofuels, and we can get off our addiction of oil. And we really need to continue to do that.

So I thank you, Mr. Chairman. I look forward to the witnesses today.

CHAIRMAN BARTON. Thank you, Congressman Engel.

Mr. Norwood.

MR. NORWOOD. Thank you very much, Mr. Chairman, for holding the hearing. I will put my statement in the record so we can get to the witnesses and have a little longer for questioning.

Thank you.

CHAIRMAN BARTON. Thank you.

Mr. Shimkus.

MR. SHIMKUS. I will waive, Mr. Chairman, for more time.

CHAIRMAN BARTON. Mr. Buyer.

MR. BUYER. I will waive.

CHAIRMAN BARTON. Mr. Bass.

MR. BASS. I will waive.

CHAIRMAN BARTON. Mr. Murphy.

MR. MURPHY. Thank you, Mr. Chairman.

I am reminded of a story of a man who had a few too many drinks, and he was on his hands and knees on a street at the curb, at a streetlight. And a policeman came by and said, "What are you doing?" The man said, "I am looking for my car keys." And the policeman said, "Where did you lose them?" And he said, "Down the end of that dark alley." And the policeman said, "Why aren't you looking down there?" And he says, "Well, there is more light over here." And the situation here, with these oil issues, that I think is not much beyond what this man was doing looking for his car keys. We all know, we learned this years ago, the issues of supply and demand. In the summer driving season, more drivers, with MTBEs and other fuel additives, that adds to costs as well. The many fuels. That adds to the cost.

But we refuse to take care of the supply issues. We sit here, and we hear people blame the President for not doing anything, but quite frankly, it is Congress that, for 30 years, hasn't done the things that we need to do. For 30 years, we haven't built nuclear power plants. For 30 years, we haven't used clean coal technology to take care of some of the energy demands. For 30 years, we haven't built oil refineries. And for some reason, we don't want to drill. We don't want to explore. We don't want to survey. We don't even want to look at maps of where the oil is on the Atlantic Coast, the Gulf Coast, the Pacific Coast, and Alaska.

People claim that they are upset that foreign nations have so much money they are making on oil. They get upset because so much the executives are making on oil. But still, the issue is we have to find oil sources here or we are going to continue to pay through the nose. People don't want to act. We are willing to have oil shipped overseas to be refined rather than coming back here. That makes about as much sense as saying, "I am going to go drive from Washington, DC to New York City to pick up a pack of gum." It is a waste of energy, it is a waste of money, and those are some big reasons why we continue to have huge oil prices.

I applaud the Chairman for having these hearings on oil, and I am hoping that as we look at this, not only will we shed more light on the issues that we need to have more capacity in this country to produce oil, to drill it, to explore it, to survey it, to refine, but also work on some of the issues that deal with conservation. If every American who has a car saved one gallon of gas per week, we wouldn't have a shortage. So it is not just a matter of making sure that we reduce demand. It is not just about fuel-efficient cars but fuel-efficient drivers as well.

There are a number of things this committee has addressed. There are a number of bills that have come before the House. But we have to stop trying to deal with this with politics and start rolling up our sleeves

and getting to policy. I hope, Mr. Chairman, that these hearings will continue to shed light on the issue that we have oil in this country and we have citizens who can come up with the ideas to reduce some of our demand for oil, but by golly, we have got to start getting it out of the ground and stop keeping it in there so we can use it to push polling numbers in the next election cycle.

Thank you, Mr. Chairman.

CHAIRMAN BARTON. I thank the gentleman.

Since I pointed it out, production started in Texas in Corsicana. Production in the United States started in Pennsylvania. Is it in your district?

MR. MURPHY. The Oil City is north of me, but it is a fine State, nonetheless.

CHAIRMAN BARTON. Okay.

Mr. Green of Texas.

MR. GREEN. Thank you, Mr. Chairman.

I want to thank you for calling this. I think it is a very important hearing.

In the Houston Chronicle, on the front page, it talks about "Chavez Leads Energy Sector's Paradigm Shift," and the first line says, "With Bolivian troops marching into gas fields, Venezuela seizing oil concessions, and Ecuador hiking energy royalties, so-called resource nationalism is on the rise in South America." That is on the headline of the Houston Chronicle, and I am sure it could be anywhere, but I don't know if it is on New York Times or the Washington Post, because I come from an area where we produce, we pipeline, and we refine crude oil. We are producing less, as the Chairman talked about, so we import it to our refineries, whether it be from Venezuela or anywhere else in the world, primarily from Mexico and Venezuela. I have a blue-collar district, and our blue-collar workers and retired folks are hit also by the high cost of gas prices at the pump, because they are on fixed incomes, and of course, we in Texas like to drive trucks and SUVs, so we are feeling the pain even more.

So many of my colleagues are getting letters and e-mails from voters who are angry about high gas prices. As elected officials, we want to offer a solution. In our responses to constituents, we try to explain that the price of oil is dictated by combined supply and demand of the world's nations. I don't really know if Exxon can decide the world price of oil any more than they walked out of Venezuela because of the price increases from President Chavez. Not many oil companies can afford to do that. So it is a real price. Unfortunately, the price of oil is at the most very unstable regions in the world. And we are not really talking about Venezuela or Ecuador or Bolivia, we are talking about Nigeria, you

know, the war in Iraq. They actually are producing less than Iraq did before the invasion. The instability is rather incredible, and what we are seeing is that the traders in these oil futures respond to every problem that you hear in these countries. In fact, I have been told that maybe 20 percent of the price of crude is based on the speculation that we are going to have less crude next week or next year than we do today, so the price is going to go up.

Most of U.S. oil is off limits by Congressionally mandated moratorium. However, still buying back productive leases in California, which I know last year, in the energy bill, when we passed it, that was one of the concerns. Obviously, that oil may not bring down the Government price, but when Iran decides to shut off exports, we are going to wish we had ANWR, and we are going to be glad the President actually reduced filling just last week simply because it was time for the United States to get our market to quit buying $70-a-barrel oil and let it go into the market to help lower the price.

The price of oil is largely the component of gasoline. We have talked about that. And it is great to point fingers at refineries, but in all honesty, we haven't built more refineries. Again, I had a district that refined lots of product. We have 12 refining companies in our country that make over 500,000 barrels a day. That is more competitive than the software-operating industry, the airline industry, the semiconductor industry, and many others. So we do have a competitive refining market. The point that members on both sides might keep about no new refineries in the last 25 years is almost irrelevant. Since 1994, existing refineries added 2.1 million barrels to capacity, the equivalent of adding a larger than average refinery each year. Over the next several years, capacity will increase another 1.2 million barrels per day, according to announced expansions.

And the most popular blame everybody, even the environmentalists, or whoever is your political opponent for the high gas prices, but in reality, these prices are beyond any one group's control. The only way we can improve the situation is by bringing more supply on the market as soon as possible. And of course, our Congress didn't help last year with the energy bill. We removed MTBE for reformulated gas, and so that cost 3 percent of our gasoline capacity. We are replacing with ethanol, but you do not have the availability for ethanol. And just yesterday, I heard the President talk about removing the import controls on ethanol so we can have it. We don't produce much ethanol in the Houston ship channel, Mr. Chairman, but we do refine a lot of gasoline, so I hope there are some new methods of ethanol refineries next to all of these refineries that I represent.

And I would like the rest of my statement to be placed in the record, Mr. Chairman.

CHAIRMAN BARTON. Without objection.

MR. GREEN. Thank you.

CHAIRMAN BARTON. We will note the clock says that the gentleman from Texas took almost 5 minutes, but in Texas, minutes are a little bit longer.

Mrs. Blackburn.

MRS. BLACKBURN. Thank you, Mr. Chairman.

I do want to thank you for the hearing today, and I want to thank our witnesses for taking the time to come be with us and to work with us through this situation. I think it is important that we put some focus on crude oil pricing, and it is essential to understanding why gas prices are what they are today.

And I hope this hearing does help everyone, my colleagues, the American public, understand that ending supply with environmental regulations during the period of the increasing demand causes gas prices to rise.

I also hope that this hearing helps my colleagues and the public to understand that taxes do not grow oil. Investments in drilling and less regulation will increase the supply of oil. We all know that. Higher taxes are not going to give you one more drop of oil.

President Clinton vetoed drilling in ANWR in 1995, and the environmentalists have continued the blockade ever since. China and Venezuela are drilling in the outer continental shelf and we are restricted. Just yesterday, many of my friends from across the aisle voted against and defeated the refinery permit process schedule on the floor of the House. The bill would have left the environment regulations alone, but it would have streamlined the permitting process of building a new refinery, something that we really need. A vote against that bill was a vote in favor of bureaucracy and a vote against the supply of gas at the pump.

I look forward to hearing the testimony that you have for us today. I look forward to continuing to work with the committee.

Mr. Chairman, I thank you, and I yield back.

CHAIRMAN BARTON. I thank the gentlelady.

Mr. Strickland.

MR. STRICKLAND. I will pass.

CHAIRMAN BARTON. I think Ms. Schakowsky was here before Mr. Allen.

MS. SCHAKOWSKY. Thank you, Mr. Chairman.

Gasoline prices have sent this committee scurrying to analyze every aspect of the domestic and world energy markets.

With no disrespect at all to our witnesses, I think this is a poor substitute for action on sensible, ready-to-go proposals, many of which have long been languishing for lack of interest by the Republican leadership, proposals that would address price increases, spur alternatives to oil, and increase conservation. For the commuter who must drive 90 minutes to work, a senior living on a fixed income, or those who depend on their cars to make deliveries, hearings are not sufficient.

CHAIRMAN BARTON. Would Ms. Schakowsky yield just for a minute?

MS. SCHAKOWSKY. I would.

CHAIRMAN BARTON. We have been graced by the presence of one of our former Full Committee Chairmen, Mr. Tauzin of Louisiana, whose portrait hangs so proudly above my right shoulder. We welcome you back and are hoping you are here to say you are going to announce to run for reelection to Congress for Louisiana.

CHAIRMAN BARTON. I am going to restart your clock so you can start over because that did interrupt your train of thought.

MS. SCHAKOWSKY. Okay. Thank you.

CHAIRMAN BARTON. I thank the gentlelady for yielding.

MS. SCHAKOWSKY. The average household with children will spend about $3,343 on transportation fuel costs this year, a 75-percent increase over 2001 costs. Memorial Day and the summer driving season are only days away.

Let us be clear, this energy crisis was foreseeable. This committee passed an energy bill last year, which the Energy Information Administration predicts they would raise prices, and it has. Republicans voted three times against giving the Federal Trade Commission the authority to regulate and prosecute our oil and gas companies that price gouge, once on this committee and twice on the floor. I and other Democrats have written to President Bush and Vice President Cheney, both oil men, many times and asked them to bring in the energy executives to develop a plan to immediately bring prices down. But not once have they stood up to their big oil comrades. Not once have they asked them for anything at all, instead lavishing them with tax breaks and other favors.

Gasoline prices have doubled under their watch, as the oil companies reported their highest profits ever. In fact, after covering all of their costs last year, oil companies took profits from consumers amounting to $1,000 from every household in America. And the golden parachute retirement package for Exxon's CEO cost every household in America the average of $3.

The Bush Administration and Congress had the power.

Well, let me back up.

Prices at the pump in the United States have risen in part because the United States has become more dependent on foreign oil at an exponentially increasing rate. Since the Bush Administration took office, oil imports have increased over 14 percent, and now we import about 20 percent of our oil from the Middle East.

The President has again missed the urgency of this crisis. His budget only increases funding for renewable energy sources by 0.2 percent this year and cuts funding for critical efficiency programs, like weatherization assistance, EnergyStar, and the Clean Cities Program. Democrats have a plan to make the United States independent of Middle Eastern oil within the next 10 years.

The Bush Administration and Congress have the power, but are not demonstrating the will to limit escalating fuel prices. We should take action today to prevent energy companies from making windfall profits off the backs of consumers, to provide Detroit with the help it needs to make fuel-flexible cars, and to increase the production of renewable fuels and use energy-efficient technology that will wean the United States off foreign oil.

Congressman Stupak has a bill that would regulate off-market trading and increase penalties for market manipulation, which we should quickly pass. Consumer confidence in Congress and the President is tanking. Showing concern about the energy crisis is simply not enough. Consumers want action and relief at the pump.

And I would like to deal with the refinery issue for just my remaining moment.

We have to acknowledge that oil companies have closed 178 refineries since 1980. Only one new refinery permit has been filed since that time. The refinery bill rejected yesterday would have given the Administration the authority to site refineries and close military bases bating local control and community right to know. An ExxonMobil official told Congress in January that flat North America demand for gasoline through 2030 means there is no need to build new U.S. refineries. In 2005 testimony, the CEOs of Shell and ConocoPhillips said they did not believe any Federal or State regulation had prevented them from siting new refineries. A 1995 American Petroleum Institute letter told energy companies to limit refinery capacity in order to boost their profits.

There are many things that we could do right now. We know about them. They have been proposed. We have devoted time to them in this committee. Democrats have asked for hearings for a long time, have asked to move these pieces of legislation, and while I appreciate the expertise of the witnesses, I look forward to their testimony, we need to

move beyond these hearings to real solutions that our constituents, the Americans, are demanding.

Thank you, Mr. Chairman. I yield back.

MR. DEAL. [Presiding.] Mr. Buyer is recognized for an opening statement. Mr. Burgess.

MR. BURGESS. Thank you, Mr. Chairman.

I have a statement that I will submit for the record, but I feel obligated to bring up a couple of points, because I have been raised on the other side, talking about oil company profits. Shad Roe, Chairman of the Texas Pension Review Board, stated that when you look at who really owns the big oil, it is teachers, firefighters, police officers, and ordinary people who hope to retire someday. Their retirement plans have been generally disappointing. The only bright spot has been the performance of energy stocks.

The other issue before us, and we talked about it some yesterday in talking about the demand side, and I do believe we need to concentrate on the demand side as much as the supply side. James Smith from Southern Methodist University said that cutting consumption may not be as painful as we believe. If every American motorist reduced consumption by one gallon a week, the price of gasoline could fall by 60 cents a gallon. And I will be interested to hear our panel's take on that observation. But the problems are complex. It is important work that needs to be done for the country.

And Mr. Chairman, I am grateful we are having these hearings this week. I don't think we can do enough of them.

With that, I will yield back.

[The prepared statement of Hon. Michael Burgess follows:]

PREPARED STATEMENT OF THE HON. MICHAEL BURGESS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF TEXAS

Mr. Chairman, thank you for convening this hearing this morning.

As we are hearing from our constituents on this topic, I think the information provided by the panelists today will help this committee get beyond the rhetoric to the facts.

The geography of oil and gas has led our country to place our energy assurance in the hands of leaders such as Venezuelan President Hugo Chavez and inflexible or unstable dictators of the Middle East.

There are ongoing concerns about the stability of supply from Russia and the Nigeria Delta Region.

As we'll hear from our panelists today, these uncertainties, along with fears about Iran's nuclear program and the ongoing war on terror, increase the price of oil around the world.

All of these geopolitical uncertainties make foreign oil unpredictable and unaffordable. As we heard from the panelists yesterday, the best way to bring down prices is to increase production in the United States. Today, we import nearly 60% of our oil, but we've prohibited exploration in the OCS, in ANWR, and on other federal land.

I believe we should allow, and in fact encourage, exploration and production here at home. A barrel of oil coming from the oil shale in Utah is significantly safer than a barrel of oil coming from Iran.

I'd like to thank our panelists who are here this morning. According to the most recent figures from EIA the price of crude accounts for between 55 and 60 percent of the price of gasoline, so I look forward to learning from our panelists about the market forces that influence the price of crude oil.

Thank you, Mr. Chairman, I yield back.

MR. DEAL. I thank the gentleman.

Mr. Gonzalez is recognized for an opening statement.

MR. GONZALEZ. Thank you very much, Mr. Chairman.

I want to welcome this opportunity to have the witnesses that we have today. I do want to start with an observation and that is that ANWR has been brought up, and I have been voting against ANWR for some time. Even though I am from the State of Texas, I believe in exploration and production, but the reason is I believe ANWR may be a prime example of what is wrong with our energy policy. There is no counterbalance to it. There is no balance. And that is, yes, exploration, quota, production, and such, but there has to be something out there when it comes to efficiencies, conservation, and alternative fuels. It is very hard to entertain the ANWR position. I am willing to bet that there are many Members that have been voting against ANWR if we had a balanced energy policy, their no vote would be translated into a yes vote. And that is what negotiation is all about, which there is very little of that here in Congress in today's environment.

Yesterday, we had a hearing regarding one part of the equation when it comes to oil and our need for it, and that was demand. We can do much about demand. We have greater control over demand, yet if you listened to the testimony yesterday, we are probably in some sort of a gridlock. Today, we are talking about supply, that which we have less control over. But yet we can still be masters of our own destinies.

And what I am hoping is that the witnesses, and especially one of the witnesses, I think, will be able to point out how certain policies, foreign energy considerations, are inexplicably intertwined, as we used to say in the practice of law, and that is foreign policy and such, which definitely impacts different conditions and dynamics out there that have a direct correlation to the price and supply of oil in this Nation and the consequences to our consumers and our constituents.

And with that, again, I just want to say thank you to the witnesses for their patience, and I yield back the balance of my time.

CHAIRMAN BARTON. We thank the gentleman.

Has Dr. Burgess been given a chance? Has Mr. Terry?

MR. TERRY. Waive.

CHAIRMAN BARTON. Mr. Terry waives. Mr. Otter?

MR. OTTER. Waive.

CHAIRMAN BARTON. He waives. Okay. It looks like Mr. Allen.

MR. ALLEN. All right. Thank you, Mr. Chairman, for holding this hearing, and I thank the witnesses for being here today.

Really, crude oil prices today are high for several reasons. Global demand is rising faster than global supply. Instability in oil-producing nations is a significant factor as well, and there are certainly others. But it is not enough for us to say, "Crude oil prices are high due to factors beyond our control. Sorry." Maybe we need to look in the mirror. Much of the instability that we find today in the world market is due to our inept foreign policy. It wasn't global oil markets that suggested that the Venezuelan government should be destabilized and overthrown. It wasn't global oil markets that have neglected West Africa, especially Nigeria, when it needed help. And it wasn't global markets that launched an ill-advised invasion of Iraq, fumbled the reconstruction, and failed to protect the oil-producing infrastructure.

Last week, Iraqi oil exports slipped to their lowest level since the invasion, and they still haven't recovered to the sanctioned levels of the 1990s. American taxpayers are paying billions of dollars for reconstruction of Iraq and also paying swelling energy prices here at home. We cannot know, and maybe you will enlighten us, how much of the spike in global oil markets is due to our inept foreign policy, how much to greed and speculation, and how much to rising global demand with uncertain supplies. I do believe that is why we need to pass Mr. Stupak's PUMP Act, which would shine some light into the off-market trading of energy commodities and allow the CFTC to monitor the activities of traders in the NYMEX and other commodity exchanges. This bill should attract bipartisan support, because it can have a significant impact on the market and on the price of oil.

I know this is a complex issue, and I very much look forward to the testimony of the witnesses. Thank you for being here.

CHAIRMAN BARTON. Thank you, Mr. Allen.

Mr. Wynn. Oh, no. I am sorry. Mr. Inslee was here before Mr. Wynn. I apologize.

MR. INSLEE. Thank you.

I just want to followup Mr. Allen's comment about the fact the Federal government's actions had compounded the misery that Americans are having right now. I recall, a few years back, I was in a meeting just a couple doors down from the room we are in now, and Paul Wolfowitz was telling us about how this invasion of Iraq was going to be totally financed by the oil exports. The American taxpayer would not have to pay a dime for the war in Iraq. Well, now, we are how many hundreds of billions of dollars in it? And, as a bonus, this was not in that

particular meeting, but in other meetings, Iraq would increase dramatically its exports and help lessen the cost of oil. That was a heck of a job done by our Administration on energy policy in Iraq, a brilliant move.

And our $3-plus a gallon is tied in part because of the incompetence, the ineffectual, and I have other adjectives I won't use, outright mistakes made by this Administration in Iraq. And now to further that failure of acts of commission, we now have acts of omission. And I appreciate the Chairman having this hearing, but we need a lot more hearings, and we need some action. We need Mr. Stupak's bill to bring the trading system under the Commodity Futures Trading Commission.

Literally, before I came to this meeting, I had a group of oil marketers. These are businessmen who sell oil and gas mostly to farmers in the State of Washington. And normally, the business community doesn't rush to endorse new regulatory schemes proposed by Congress, but these gentlemen said, "Look, you have got to have some transparency in the trading system of oil and gas because there has been such huge volatility in these areas in part because of the unregulated nature and non-transparent nature of these trades." And we have enormous capital rushing into these trading systems, increasing speculation, and increase in volatility in these markets. So this is something that if you do it for soybeans, you certainly ought to be doing it for oil and gas. And we hope that we can have some action from this Committee on that bill, as we will, I hope, on some of the bipartisan efforts. Mr. Kingston and Mr. Engel have a bill to inspire flex-fuel vehicles so we can get biofuels to be a competitor to oil and gas. We need some action in addition to these hearings.

Thank you.

CHAIRMAN BARTON. Thank you, Mr. Inslee.

Mrs. Wilson.

MRS. WILSON. Thank you, Mr. Chairman.

I apologize for getting here a little bit late, and I appreciate your holding this hearing.

I understand that there appears from the materials that you have given us anyway to be some disagreement as to the multiple causes of high prices for a barrel of oil. But one of the things that surprises me is that for the last four weeks, the average daily gasoline demand in the United States was a little over nine million barrels per day, which was barely higher than it was a year ago, and yet oil prices remain 36 percent higher than they were a year ago.

I recognize that oil is a worldwide commodity and there are a lot of things that affect this market, but I would like a little further explanation here of why there is this great disparity. And I have read some of the

material you had given us, but there is some of it that, for people who are just trying to fill up their cars, really doesn't make a lot of sense.

CHAIRMAN BARTON. Is that the end of your statement?

MRS. WILSON. It is a question. I would like to hear why--

CHAIRMAN BARTON. We are still on the opening statements.

MRS. WILSON. Oh, I am sorry, Mr. Chairman. I apologize. I look forward to the hearing.

CHAIRMAN BARTON. I thought that was a very dramatic way to end your opening statement.

MRS. WILSON. I look forward to hearing why this is dramatic, and it just doesn't make sense to people.

Thank you, Mr. Chairman.

CHAIRMAN BARTON. Thank you.

You are still on after that after your victory on the price gouging bill on the floor yesterday, so there you go.

Let us see. Now it is Mr. Wynn's turn.

MR. WYNN. Thank you, Mr. Chairman. I certainly appreciate you calling this very important hearing to get a better understanding of the global energy picture.

Let me begin by actually complimenting my colleague, Mr. Allen, because I think he very astutely and effectively outlined the phase and foreign policy of this Administration with respect to energy in Venezuela, Nigeria, and Iraq, and I certainly agree with his sentiments in that regard.

Presumably, I am hopeful that in this hearing that we will hear somewhat extended discussion about the impact of energy policies in China and India and the largely state-controlled, state-influenced systems that seem to be contributing significantly to the shortage by virtue of their expanding demand. The information that I have received would indicate that they have a policy, certainly China, of purchasing long-term contracts, significantly reducing the long-term availability of oil on the world market. If, in fact, that is the case, and I certainly could stand to be corrected, then I would be very anxious to hear what the United States' response to this is, because we may have very effective conservation policy in this country, but the demand in China continues to consume at the rate it is consuming and if that expands and if, in fact, they are using this strategy of long-term contracts and, in my opinion, questionable foreign policy in places, such as Sudan, in order to obtain oil, we will need to have an adequate response, because our conservation will not impact the world oil market, and thus we will continue to experience significantly high prices at the pump. So I am hopeful the witnesses can comment on these, among other, issues.

But again, Mr. Chairman, thank you for calling the hearing. I look forward to hearing from the witnesses.

[The prepared statement of Hon. Albert R. Wynn follows:]

PREPARED STATEMENT OF THE HON. ALBERT R. WYNN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MARYLAND

Chairman Barton and Ranking Member Dingell, most of us understand that today's excessively high crude oil prices reflect the global market for oil. For instance, Iran continues to defy world pressure to halt its nuclear program. Recently, Iran threatened to cut off oil production in response to possible U.N. sanctions - illustrating the devastating impact oil producing regimes exert on world markets. The mere threat of disruption has contributed to the volatility of world oil prices, thus locally impacting national gas prices. In Africa, 25% of Nigeria's oil output has been stalled due to rebel attacks, leaving about 530,000 barrels per day are offline.

Contrary to the Administration's pre-war claims, ongoing security concerns in Iraq have suppressed pre-war output by about 900,000 barrels per day. In our own hemisphere, partially in response to our own ham-fisted foreign policy, Venezuela has reasserted its intention to exert greater control over foreign-owned oil companies, reducing production by 400,000 barrels below its 2002 pre-strike levels. Additionally, China's demand for oil is expected to continue to increase by five to seven per cent per year, and over the last two years, Asia has consumed more oil than North America. This trend is expected to continue.

These are all factors that contribute to the world price of oil on the New York Mercantile Exchange (NYMX), which recently hit a record high of $75 per barrel. Speculative buying and selling also impact the price of oil as traders update their portfolios to reflect anticipated market conditions. According to a recent New York Times Article, until more investments are completed in oil production and refining, markets will remain on edge and the slightest bit of bad news will likely increase prices. Because the U.S. is reliant on 60% of imported oil from foreign sources, we will be forever tied to the world oil market and be vulnerable to that market --- unless we can become self-sustaining and self-sufficient.

Today's global conditions lead us towards two ultimate conclusions. First, we must wean ourselves off of foreign sources of oil from politically unstable nations and fast track alternative forms of energy. For instance, hydrogen is the energy of the future - anything from nuclear to solar has the potential to produce hydrogen, and since its only byproduct is water, the energy source is emissions free. Second, in the interim, we must evaluate the nature of US foreign relations with oil seeking countries. In today's resource competitive environment, it may be extremely difficult to change the face of US foreign policy to promote better relations with oil producing and consuming nations alike, but we must act quickly.

Presumably, I am hopeful that this hearing will address the impact of energy policies in China and India, which are significantly contributing to the shortage of oil by virtue of their expanding demand. Data indicate that China, in particular, purchases long-term contracts, that will significantly reduce the availability of oil on the world market over the long haul. I would be interested in learning how the US intends to address this concern.

Mr. Chairman, hopefully, the testimony delivered today will do more than serve as a primer in energy prices, but as a wake up call to the American people about the severity of today's energy crisis - which goes beyond $3 gasoline. Thank you, and I look forward to today's testimony.

CHAIRMAN BARTON. I thank the gentleman.

Mr. Stearns from Florida.

MR. STEARNS. Thank you, Mr. Chairman.

And I submit that we hear from different Members talking about criticizing the Administration or criticizing Congress. You know, there are just supply and demand fundamentals involved, and they play a critical role in world oil prices. Obviously, there are geopolitical concerns, too.

With respect to the supply estimate, there are two million-plus barrels per day, BPD, of aggregate disruption in the world supply. We know that China, in 2004, increased demand 16 percent. India almost the same thing. That sent shockwaves through the market. On May 2, 2006, the spot price for crude oil closed at $74.78 per barrel, approximately a $25-increase over the spot price just a year ago, and nearly four times the spot price of crude oil a decade ago. You don't have to go far. You can even look in Nigeria to see there are 530,000 BPD shut off by the insurgents. Venezuela has a large amount. Even in Iraq, the pre-war levels were low. The U.S. Gulf of Mexico, obviously, with Katrina. So disruptions in these countries has created this increase in oil prices. And so really that is beyond the Administration, and beyond the Congress at this point, so a lot of us should realize that a lot of this is geopolitical and there is nothing you can do unless you are going to approach it from a political standpoint. So this hearing, I think, should bring out some of the things I mentioned, these countries and all of these supply disruptions and the global crude oil inventories, the different size of these and how they have affected the supply and demand.

So Mr. Chairman, I think in a larger sense, many members should realize it is supply and demand, and that is what we are facing.

Thank you.

[The prepared statement of Hon. Cliff Stearns follows:]

PREPARED STATEMENT OF THE HON. CLIFF STEARNS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF FLORIDA

Mr. Chairman, thank you for convening today's hearing on global oil markets. This Committee, through the Energy Policy Act and the GAS Act, has dedicated a lot of time and energy to removing the regulatory barriers to increased oil supply and to encouraging greater efficiencies in the use of energy and limiting its consumption. While we have worked diligently on domestic problems within the realm of our jurisdiction, I hope that today's witnesses will enlighten us as to the impact of international events on the supply of and demand for oil as a commodity. With skyrocketing demand in China and India, a bubbling insurgency in Nigeria, continuing instability in Iraq, potential war with Iran, and a growing trend of nationalization and seizure of private companies' operations in South America, it is no wonder that the price of a barrel of oil is nearly $75 -- a nearly 25% increase from a year ago.

Disruptions in South America have received the least amount of attention in the popular press. Just last month, Venezuelan strongman Hugo Chavez cancelled contracts with foreign oil companies, demanding that the government oil company be given majority ownership and operational charge of oil fields. Potential new contracts are offering little to no profit. Companies that refused to bolt the country outright have found their operations seized. Mr. Chavez has a copycat in Bolivia's new President, Evo Morales, who nationalized his energy sector this past Monday.

These moves will prove detrimental to both the Bolivian and Venezuelan economies, and to the world economy. Venezuela is already suffering from insufficient investment in energy production. Rampant corruption, and the use of energy profits to prop up socialist rule at home and insurgency abroad, have left Venezuela's oil fields depleting at a rate of 25% a year.

However, in the end, none of these global disruptions perfectly explain the price of a barrel of oil. Only the market concepts of insufficient supply and growing demand can do that. The low cost of oil in the nineties discouraged exploration for new sources while encouraging greater consumption. That is why incidents in oil-producing countries, as well as freakish weather like Hurricane Katrina, can drive up prices so sharply.

CHAIRMAN BARTON. Let us see. Ms. Solis.

MS. SOLIS. Thank you, Mr. Chairman.

Mr. Chairman, thank you for having this hearing today, and I am glad that we are discussing the global price of oil, and I am pleased that our witnesses today will help us better understand how oil is priced.

And oil, as I know it, is a global commodity in the global marketplace. Its price is seemingly driven only by the premise that there is never enough being produced. This is true in the United States, which has one of the largest demands for oil. We import nearly 60 percent of our oil, more than the total oil consumption of any other country in the world and have less than 3 percent of reserves. Because of our dependency on oil and the lack of reserves, we are extremely vulnerable to variations in international pricing.

And also complicating the factor is that the U.S. dollar is weak. The United States is borrowing from foreign countries to pay for its war in Iraq, imports of raw and manufactured materials. Our current account deficit is 7 percent of the economic production and is not decreasing. And our largest trade deficit is with China, which is increasingly competing for supplies of oil.

What this means is that we are highly integrating the global marketplace and are affected by what happens in the international market. Some would argue that the solution is to dig and drill here in the United States. Some would argue that the solution also is that we open up ANWR. However, the United States has less than 3 percent of proven reserves. This does not begin to touch the growing demand of U.S. consumers. No matter how much we dig and drill at home, we will always be vulnerable to changes in the world market. That is, unless we

take steps to become more independent of oil, not just foreign oil but all oil.

And I strongly support diversifying our energy supply, funding alternative supplies and conservation. Unfortunately, renewable energy programs are being funded at less than 20 percent of what was authorized, and funding for clean energy research is less than 7 percent of the profits made by ExxonMobil in the last quarter of 2005 and less than that amount included in the President's budget energy bill for fossil fuels.

Our Nation's budget, in my opinion, must reflect the urgency of reducing our dependency on all oil, not just foreign. Perhaps, we will finally learn from our discussions today where we need to go, and I hope that we can ascertain some of these answers.

I yield back the balance of my time.

CHAIRMAN BARTON. I thank the gentlelady.

Mr. Ross.

MR. ROSS. Thank you, Mr. Chairman.

I would like to thank you for holding this important hearing regarding record crude oil prices and the adverse impact they are having on Americans. Americans are being forced to change their way of life, being forced to choose between paying bills, buying prescription drugs, or putting gasoline in their vehicles.

Mr. Chairman, I represent a large and rural district in the State of Arkansas, about half the State. My district includes 21,000 square miles and 150 towns and 29 counties. About half of the folks don't even live in those 150 towns. They live in what we call the country. It is not uncommon for my constituents to drive 50 or 75 miles each way to and from work. And in most cases, they commute these distances for a job that pays well below the national average. Mass transit is not an option for them. Hardworking Americans who are trying to do the right thing by working to put food on the table, to keep the lights on, and to provide for their families are being devastated by these record gas prices.

In order to see true reductions in prices, we would have to either increase supply or decrease demand or, ideally, both. I strongly support the continued development and use of ethanol and biodiesel as a way to reduce the demand on costly fossil fuels. And as we continue working to increase the use of biofuels, we must make the necessary investments to develop our Nation's infrastructure to support increased use of ethanol and biodiesel.

Mr. Chairman, I am committed to working with my colleagues on both sides of the aisle to make these investments to advance alternative fuels, which will provide Americans with a choice when they go to the pump.

Now Mr. Chairman, the reality is this. In the energy bill that I voted for and we passed earlier this year, there is about $150 million in that bill for grants for alternative renewable fuels. That is authorized, but not yet appropriated. And yet we send some $279 million every day to Iraq. So I want to make sure the American people understand that while there is a lot of talk these days about alternative renewable fuels, we are going to invest about half as much money in grants for alternative renewable fuels in these United States of America as what we will spend in Iraq in the next 24 hours.

And I say these things because I recognize that as we develop alternative fuels and flex-fuel vehicles, our Nation will continue to rely on fossil fuels as our primary source of energy. Therefore, I believe we must promote further exploration and development of domestic oil and gas production. I submit that addressing our Nation's energy crisis will take a multi-faceted approach consisting of increased domestic production, conservation, the use of alternative and renewable energy sources, utilizing energy-efficient technologies, and end-user participation.

And with that, Mr. Chairman, I yield back the balance of my time.

CHAIRMAN BARTON. I thank the gentleman.

I would like to add my support for what he said in his statement. I am working with Mr. Dingell right now on a bipartisan letter to send to the appropriators, outlining my concerns about some of the programs that we have authorized that haven't been funded and also some of the programs that have not been authorized that are being funded. Those discussions are ongoing with myself and Mr. Dingell. So we are trying to track some of the things that you have said in your statement.

The Chairman of the Veterans' Committee is with us. Does Mr. Buyer wish to make an opening statement?

Okay. Seeing no other Members present who have not yet had a chance to make an opening statement, the Chair would ask unanimous consent that all Members not present have the requisite number of days to put their statement in the record at the appropriate time. Without objection, so ordered.

[Additional statements submitted for the record follows:]

PREPARED STATEMENT OF THE HON. MARY BONO, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

Mr. Chairman, thank you for holding this hearing today.

I believe that almost everyone here realizes that we are far too dependent on foreign oil. So price fluctuations abroad have a great impact at home.

I also realize that countries like China increase the overall worldwide demand on this resource. China is a country hungry for oil and natural gas and it now has the resources to bid in this marketplace.

But if our witnesses do not comment on this, I would like to ask them how Russia will impact the future price of world oil. Mr. Frederick Kempe in a May 2, 2006 Wall Street Journal piece discusses how Russia has "reinvented itself as an 'energy superpower'" and "is moving quickly to consolidate and expand its virtual gas monopoly in many parts of Europe...."

While our European allies are more directly impacted by this, the fact that our world economy is so tied together and also the fact that Europe could also be shopping elsewhere is certainly a concern, never mind the geopolitical implications of Russia's rise to power in this field.

Of course, I also realize the impact Iran has on the price of world oil. The instability within the region itself is a huge concern of ours not just because its impact on energy but because the shadow of Iran's threat is cast beyond the sole concerns of our access to oil.

Finally, I wanted to take a moment to discuss another potential impact on the price of foreign crude. If you talk to many domestic producers, they might comment on how the prices they are getting for their oil is too low and how that threatens to put them out of business. We are not talking about $70 a barrel but rather, $22 to $35 dollars a barrel for domestic oil. Imagine the impact of losing our domestic producers and how that would impact the price we pay at the pump.

Again, Mr. Chairman, thank you for holding this hearing today. I look forward to hearing from the witnesses.

PREPARED STATEMENT OF THE HON. CHARLES W. "CHIP" PICKERING, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MISSISSIPPI

Energy prices are on the minds of all Americans these days, given high gas prices. As Members of Congress, we are charged with taking the necessary steps to ensure that appropriate safeguards exist that will protect against unfair pricing of energy commodities, including crude oil. Therefore, our series of hearing on these issues is extremely important and timely. If we find evidence of lapses in oversight of our energy markets, we will take necessary actions to correct the problems. I understand that the New York Mercantile Exchange provides an important platform for the trading of these energy commodities and I look forward to hearing testimony today from NYMEX which will give the committee a better understanding of how their marketplace functions on a daily basis and what their platform means for energy prices. I understand that NYMEX is regulated by the U.S. Commodity Futures Trading Commission and look forward to hearing more about how the oversight regime works.

I am also interested in hearing about other energy markets and other platforms which could have an impact on energy prices. More importantly, I am concerned based on my understanding of these other platforms, that the regulatory attention paid to them may be somewhat less than that received by NYMEX. If this is in fact the case, I will be interested in hearing testimony explaining why this is the case and if the additional regulatory oversight is necessary, especially given the important of these markets in establishing prices for commodities used by all Americans. If the evidence suggests insufficient oversight, which could be contributing to higher prices or even market manipulation, it is my hope that our committee will move to fix the problem

CHAIRMAN BARTON. We now welcome our first two witnesses. We are going to start with you, Mr. Caruso, and then we will let Dr. Yergin be the clean-up.

Normally we do 5 minute summaries, but because of the importance of this issue, we will recognize you for 10 minutes each, and if you need a little bit more time, we are not going to be too picky about that.

So welcome to the committee, and we would like to hear your statement.

## STATEMENTS OF GUY CARUSO, ADMINISTRATOR, ENERGY INFORMATION ADMINISTRATION, U.S. DEPARTMENT OF ENERGY; AND DANIEL YERGIN, CHAIRMAN, CAMBRIDGE ENERGY RESEARCH ASSOCIATES

MR. CARUSO. Thank you very much, Mr. Chairman, members of the committee. I appreciate this opportunity to present the Energy Information Administration's views and analysis on the world oil market situation.

As we often hear in the real estate market, the three key factors are location, location, and location. In the global oil market, the three key factors are capacity, capacity, and capacity. And that is capacity from the upstream sector of the industry to explore, develop, and produce through the midstream transporting that crude oil to the downstream of refining, distribution, and marketing. And as we sit here today, in an 85-million-barrel-a-day world oil industry, all of those capacities, from the upstream through the downstream, are stretched very thin.

During the 1990s, these capacities were looser and the price, for example, of West Texas Intermediate crude averaged about $20 a barrel. It even fell to $10 a barrel in 1998. OPEC managed the market. After that price collapse, prices were coming back and value increased to about $30 in 2003. The main reason was world demand was growing, and prices doubled to an average of almost $60 in 2005, and, as we know, today, they are above $70 a barrel.

Crude oil prices are set in international markets based on world supply and demand. These higher prices should reduce demand and increase supply, however, we must recognize that there are considerable time lags in responses to the higher prices on both the demand and the supply side. Changing consumer behavior, investment responses all take time, and investment in new oil production and refining projects take time for a variety of reasons.

In the short term, crude oil end-product inventories, surplus production capacity, and international trade all serve as cushions for unexpected shifts in demand or supply of petroleum products. Today, the cushions just aren't available to make an effect on this market. As a result of that, the only pressure relief valve is price, and that is what we have been witnessing really beginning in 2004, and it continues as we speak.

The robust global economic growth has been a key factor, and it has pushed the demand for crude oil up significantly in recent years. After

slow growth in the 1990s, oil demand grew significantly beginning in 2003 and, in 2004, it grew by 2.5 million barrels a day, the largest rate of growth in 30 years, and this was particularly stimulated by very robust growth in China, other emerging Asian economies, in the Middle East itself, and in the United States. Now we are seeing a little bit of an effect of the higher oil prices as U.S. demand was relatively flat last year, and thus, by this year, is only up slightly.

Turning to supply, non-OPEC producers, who tend to further utilize their available crude production capacity for economic reasons, produce about 60 percent of the world's oil supply. In 2005, there was essentially no growth in non-OPEC supply due to natural declines in the mature fields, project delays, and most importantly, the U.S. hurricanes, which continue to affect the U.S. production today.

The nations in OPEC produce about 40 percent of the world's oil, and its members in the Middle East hold the bulk of the world's oil reserves. For most of the time since the early 1980s, OPEC members held sizable surplus production capacity. However, that margin has sharply narrowed as world demand has grown. World surplus productive capacity now totals only about one to, at most, 1.5 million barrels a day out of an 85-million-barrel-a-day world, about 98 percent of capacity.

The uncertainties that we have heard a number of committee members mention this morning about supply in Iraq, in Nigeria, in Venezuela, and in Russia, all are certainly adding to the psychological pressures in this marketplace and to concerns that future supply disruptions may occur.

Oil markets, of course, are not just about crude oil supply but also refining. Excess refining capacity has also been shrinking, not only in the United States but globally, in the primary distillation facilities and, most importantly, in conversion capacity to turn sulfurous crude into gasoline, diesel fuel, and jet fuel, which account for about 70 percent of our oil demand in this country.

We estimate that refinery utilization worldwide is at about 90 percent in 2006, up from 85 percent as recently as 2002. Although refining margins have increased with these higher product prices, there also has been considerable volatility, which tends to effect companies' willingness to invest in what oftentimes is a multi-year development project which must pay off over decades.

With this virtual disappearance of U.S. excess refining capacity, we are now seeing a number of firms, as has been mentioned by Mr. Green, that have announced expansion plans at existing facilities. New grassroots refineries are under construction at this time.

Another factor affecting refineries is crude oil quality. The limited amount of surplus capacity that exists today is in Saudi Arabia, and it is

relatively high sulfur, or sour crude. This puts a strain on refineries around the world to process the lower-quality oil. The trends in crude and product slates plus frightening product specifications have increased the need for refineries to invest in upgrades to their existing equipment.

In tight markets without surplus capacity, inventories also play an important role as a buffer against supply problems. We currently are witnessing a futures market, which is in contango, meaning that the future prices are actually higher than the current price in the physical market. This puts another incentive for companies to add to inventories, and the desire to increase inventories adds to current demand, putting additional pressure on prices.

Some analysts, as has been mentioned this morning, suggest that the current prices reflect a "fear" premium, a "risk" premium. In our view, supply and demand factors can explain most of the price increases seen over the last few years, particularly when it is recognized that demand for high inventories is rational under conditions of tight surplus capacity and particularly supply uncertainty. Unless surplus capacity increases significantly, or many of the supply uncertainties are resolved, we could see high inventories and high prices, reflecting a shift from the traditional paradigm that associates high inventories with low prices.

Now let me briefly turn to the current EIA short-term outlook.

We have been saying for some months that the world oil market is tight and that prices are likely to remain high over the next two years. Our most recent short-term energy outlook released April 11 projected crude oil prices averaging $65 for WTI in 2006 and $61 in 2007. Based on developments just in the last several weeks, there is likely to be some upward adjustment in these projections when our May outlook is issued next week. We project continued growth in world oil demand of about 1.5 million barrels per day in 2006 and a similar increase in 2007. Non-OPEC production growth is expected to run behind global demand growth in 2006, increasing the call on OPEC's oil, but still allowing for a small increase in OPEC's surplus production capacity.

Based on projects already in the pipeline, it is likely that growth in OPEC and non-OPEC capacity will exceed demand growth between 2007 and 2010, possibly pushing surplus production capacity to three to five million barrels per day by 2010.

High crude oil prices, growing demand, and changing fuel specifications are expected to keep U.S. product prices high in 2006. High gasoline margins are expected due to demand increases, sulfur reductions, the phase-out of MTBE, and the unusually high level of refinery outages recently, partly due to deferred maintenance from the Katrina and Rita aftermaths, and to some capacity actually still off-line due to those hurricanes.

So in summary, Mr. Chairman and members of the committee, we see oil markets over the next two years characterized by strong demand growth, tight global capacity for both crude production and refining, and continued supply uncertainty in a number of key producing countries.

And with that, Mr. Chairman, I would be pleased to answer questions at the appropriate time.

[The prepared statement of Hon. Guy F. Caruso follows:]

PREPARED STATEMENT OF THE HON. GUY F. CARUSO, ADMINISTRATOR, ENERGY INFORMATION ADMINISTRATION, U.S. DEPARTMENT OF ENERGY

Mr. Chairman and Members of the Committee:

I appreciate the opportunity to appear before you today to discuss the world oil market situation.

The Energy Information Administration (EIA) is the independent statistical and analytical agency within the Department of Energy. We are charged with providing objective, timely, and relevant data, analysis, and projections for the use of the Congress, the Administration, and the public. We do not take positions on policy issues. We do produce data, analysis, and forecasts that are meant to assist policymakers in their energy policy deliberations. Because we have an element of statutory independence with respect to this work, our views are strictly those of EIA and should not be construed as representing those of the Department of Energy or the Administration.

Oil market developments are a matter of vital interest to all Americans. During most of the 1990s, the West Texas Intermediate (WTI) crude oil price averaged close to $20 per barrel, but plunged to almost $10 per barrel in late 1998 as a result of the Asian financial crisis slowing demand growth while extra supply from Iraq was entering the market for the first time since the Gulf War. During that time, the Organization of Petroleum Exporting Countries (OPEC) producers adhered to a coordinated production quota and reduced output. Crude oil prices not only recovered, but increased to about $30 per barrel as demand grew. The recent increase in crude oil prices began in 2004, when crude oil prices almost doubled from 2003 levels, rising from about $30 per barrel at the end of 2003 to peak at $56.37 on October 26, 2004. After falling back briefly, prices then continued to rise in 2005 and in the early months of 2006. Just recently, we have seen WTI prices rise above $70 per barrel. This is a significant change from what we experienced during the latter half of the 1980s and the 1990s. As requested in your invitation, my testimony focuses on the major forces at work in today's oil market and then briefly reviews EIA's current assessment.

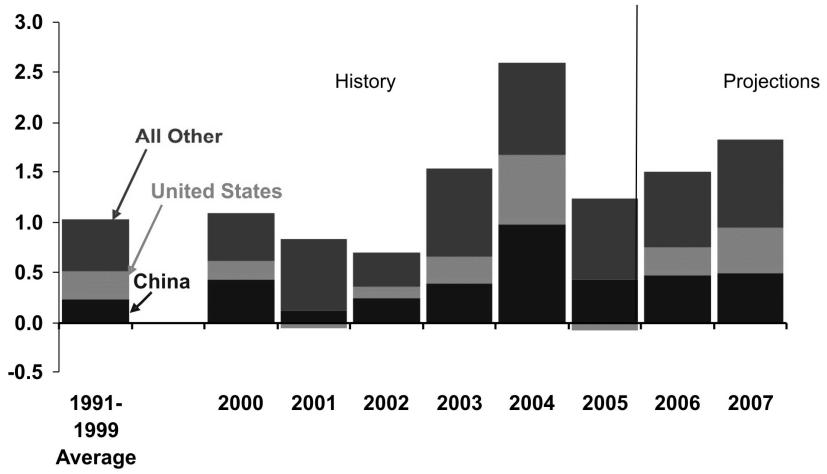
**Major Forces Affecting World Oil Markets**

Crude oil prices are determined in international markets. All else being equal, higher prices should tend to reduce oil demand and increase supply. However, oil demand is also strongly influenced by economic growth, weather patterns, and the availability and price of other fuels. Moreover, oil supply can be significantly affected by weather-related disruptions, instability, impediments to investment in key oil producing areas, and, under certain market conditions, decisions by producers to withhold supplies. Because there are considerable lags in the investment and behavioral responses to changing oil prices, recent price increases have had only a very small immediate impact on the amount of oil consumed or produced. For this reason, changes in the key non-price factors that can shift demand and supply at any point in time can result in significant price swings, particularly when oil markets are tight. Given the inherent uncertainty in oil markets, commercial inventories of crude oil and products and surplus oil production and refining capacity

serve as cushions to absorb the impacts of unexpected shifts in oil supply or demand. International arbitrage in products, such as the movement of gasoline from Europe to the United States, is yet another form of cushioning. All of these factors are interrelated, as will be discussed in more detail below.

**Demand**. Recent years have seen a significant acceleration in oil consumption growth, largely driven by strong global economic growth. As illustrated in **Figure 1**, oil consumption, which grew at a rate, on average, of roughly 1 million barrels per day throughout the 1990s, accelerated sharply in 2003 and especially in 2004, when global oil demand grew by 2.5 million barrels per day. Demand growth has been particularly strong in China, other emerging economies in Asia, and the United States. In 2005, although available data to date indicate that U.S. oil consumption was essentially flat at the 2004 level, world consumption grew by well over 1 million barrels per day despite rising prices. In addition to demand for consumption, there is also a demand for commercial (non-strategic) stocks of crude oil and products. Commercial oil stocks have recently been growing, as discussed below.

**Figure 1. World Oil Demand Growth (million barrels per day)**




**Source: EIA, Short-Term Energy Outlook, April 2006**

**Supply**. Growth in production and productive capacity is shaped by geological, economic, and political factors. Production in countries that are not members of OPEC accounts for about 60 percent of total crude oil supply. Crude oil suppliers outside of OPEC generally produce at maximum rates (i.e., no surplus production capacity) for economic reasons.

Although they provide only about 40 percent of the world's oil supply, capacity, and production, statements by the member countries of OPEC are closely watched. Unlike other producers, OPEC and its members explicitly seek to influence world prices by varying production levels relative to available capacity. Middle East countries that are members of OPEC also hold the bulk of the world's proved reserves of oil.

For most of the time since the early 1980s, OPEC members, primarily Saudi Arabia, have maintained a considerable margin of surplus crude oil production capacity. The large growth in non-OPEC capacity and production in areas like the North Sea, Russia,

and Alaskan North Slope, along with softening demand in response to the substantial increase in oil prices following the two oil price shocks of the 1970s, led to major cuts in OPEC production in the 1980s, creating large capacity surpluses. As oil demand grew through the 1990s, OPEC production increased without a corresponding increase in capacity, and the margin of surplus capacity generally narrowed. However, while short-term imbalances between supply and demand resulted in some price swings during the 1990s, those imbalances did not last long, as capacity generally existed to remedy the situation within a year.

Even as demand growth slowed somewhat in 2005 compared to 2004, 2005 witnessed no real growth in non-OPEC supply, in part because of the U.S. hurricanes, but also because of other factors such as project delays and significant natural decline in mature producing areas. Hence, instead of 2005 giving the market time to breathe after the rapid demand growth in 2004, market conditions in 2005 only grew tighter.

Ongoing supply uncertainties associated with Iraq and Nigeria and investment uncertainties in Russia and Venezuela have added to market concerns over the availability of crude oil, and prices have continued to rise. In 2005, Iran and Ecuador added new uncertainties. So far in 2006, we have seen continued, if not growing, geopolitical risks, with Chad most recently added to the list of potential concerns.

**Refining (Downstream) Capacity Constraints.** In the past few years, even as crude oil prices rose sharply, a great deal of attention has been turned toward the importance of the refining sector, especially following the hurricanes last fall. The storm-related shutdown of many Gulf Coast refineries highlighted a situation that had been developing for some time. Excess capacity in the refining industry, like that for crude oil production, has been shrinking as demand has grown, leaving less of a buffer for emergencies or any periods when the balance between supply and demand becomes unusually tight. The reduction in excess refining capacity is a global phenomenon. EIA estimates that global refinery utilization has grown to about 90 percent of capacity, up from 85 percent as recently as 2002, as the overall growth in demand for petroleum products has outpaced refinery additions.

Historically, price differentials between crude oil and petroleum products have varied significantly over time due to a number of influences, the greatest of which is seasonality. Even in the absence of changes in the underlying cost of the crude oil from which they are refined, gasoline and distillates (including heating oil, diesel fuel, and jet fuel) exhibit seasonal pricing cycles over the course of the year. Gasoline prices (and differentials from crude oil) tend to rise before and during the summer, when demand for it is greater, and decline in the winter. Distillate prices and differentials, on the other hand, tend to increase over the fall and early winter, as space-heating demand increases, then to drop in the spring.

This underlying seasonal pattern has always been subject to distortion under unusual situations, such as supply interruptions or severe weather, which can affect both supply and demand. But by and large, the seasonal shifts in differentials between crude oil and petroleum product prices were relatively consistent, and thus predictable. In recent years, however, as excess refinery capacity has dwindled, these price spreads have become subject to much wider swings, both seasonally and under unusual supply or demand conditions. For example, through the 1990s, the average spread between U.S. spot gasoline and WTI crude oil prices generally swung from a low of less than 10 cents per gallon during the winter months to a high of around 20 cents in the summer. Since 2000, the corresponding range has been from a winter low of about 10 cents to a summer high of 30 to 40 cents, with last year featuring an all-time monthly average high of 67 cents in September, following Hurricane Katrina.

Much has been made of these higher differentials and the accompanying higher profits to refiners. Clearly, when refinery utilization rates were below today's high level, margins were generally lower but so was refining profitability, providing little incentive

for the building of new refining capacity. As a result, as product demand caught up to existing refinery capacity, capacity that was not fully utilized has effectively disappeared in the United States, and consequently refining margins have grown. A number of U.S. refiners have announced major refinery expansion projects to be completed in the next few years.

**Commercial Inventories of Crude Oil and Products**. When the lack of surplus capacity along the entire supply chain is put in context of an oil market where uncertainties about future supply abound (e.g., Iran, Nigeria, Iraq, and Venezuela), market participants are concerned about being able to get needed supplies should something cause a drop in supply.

As a result, many of them have stored additional inventories as a buffer should there be a supply problem at some point in the future. In other words, whereas markets have traditionally relied on available surplus capacity to provide a part of the response to any unexpected supply problems, under current tight capacity conditions, inventories must play a relatively larger role in buffering the market, and the demand for inventories has increased, putting upward pressure on prices.

Additionally, until the most recent surge in crude oil prices, oil market futures prices were in contango, i.e., a market in which prices for commodities delivered in future months are higher than for those delivered in months closer to the present. This provides economic incentive for suppliers to build inventories as they can buy physical barrels at current prices, but hedge against any drop in prices by selling contracts at higher prices on the futures market. Of course, one of the reasons oil markets were in contango is concern about the potential of a disruption in supplies in the future, either from events overseas or from hurricanes, for example.

Thus, until either surplus capacity increases significantly or many of the perceived uncertainties in the market are removed, oil markets could see high inventories coexist with high prices for the foreseeable future. Oil market analysts used to the old, inverse relationship between inventories and prices need to understand that new market dynamics (lack of surplus capacity and contango) have significantly altered this linkage. This perception that high oil prices may continue for some time encourages non-physical traders to buy up contracts, adding further support to high prices on commodity markets. In addition, the volume of non-physical traders has increased in recent years, meaning that speculative investors have a somewhat greater effect on price than in the past. Nevertheless, such speculation is more an effect of real market conditions than a cause, in and of itself, of high prices.

**Crude Oil Price Differentials**. As global oil demand growth has outpaced supply, shrinking available surplus crude oil production and refining capacity, another factor has become increasingly important – the quality of the crude oil streams available. The very limited amount of surplus oil production capacity is increasingly concentrated in heavy, sour (high-sulfur) crude, at a time when demand growth for "light" products such as gasoline, diesel fuel, and jet fuel has been particularly strong. The decline in average crude quality has put even more strain on a global refining system that is already running at unprecedented utilization rates to turn available feedstocks into the desired product slate.

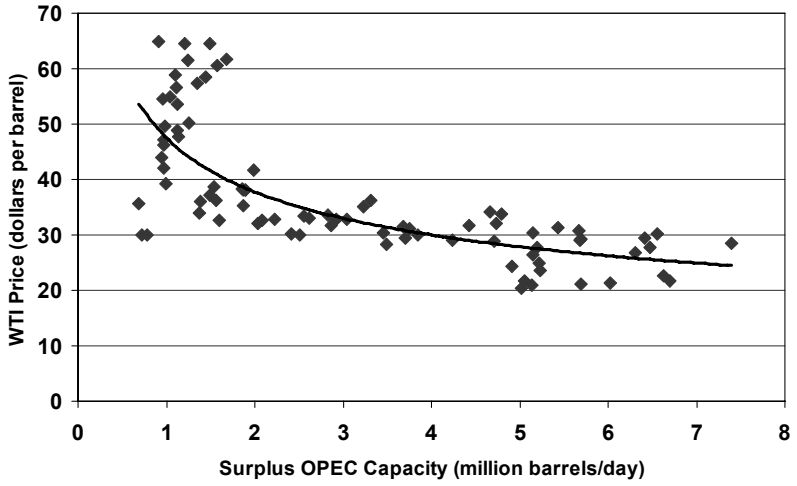
The combination of higher demand for "clean" and "light" products and tighter supply of light, sweet crude oils has resulted in wider price differentials between crude types. Thus, in addition to higher average world crude oil prices, the prices of high-quality crude oils, which can yield the highest percentages of gasoline and other light products, have grown even faster than the average, placing an even greater price premium on "clean" products such as reformulated gasoline and low-sulfur diesel fuel. The price differential between crude oil types also places a greater premium on high-upgrading refinery capacity, including facilities able to remove more sulfur and produce higher yields of light products from heavier crude streams. Along with tightening product

specifications and other environmental constraints, these trends have forced refiners to spend more capital on upgrading existing refinery equipment, at the expense of greater capacity growth.

**Is There an Additional "Fear" Premium?** Some analysts, noting that oil markets have recently shown price changes that they deem to be "unwarranted" in response to seemingly innocuous news, have argued that prices are high due to speculation or a "fear" or "risk" premium. What is missing from this argument is recognition that under the current tight oil market conditions described above, there is very little flexibility in the global production or refining system to react to potential supply shortfalls or demand surges. EIA currently estimates that global surplus crude oil production capacity is only about 1.0-1.5 million barrels per day. The relationship between surplus OPEC capacity and prices is depicted in **Figure 2**. As many as 20 different countries currently produce at least 1 million barrels per day.

Flexibility in oil markets is currently very limited in the capacity to produce significant incremental volumes of crude oil or light products. Under these conditions, it is not too surprising that traders would bid prices up and down substantially on what may, on the surface, appear to be insignificant news, but what can, nevertheless, change expectations about what the future may hold. This is why oil prices can increase as fears about the damage a hurricane might inflict arise as the hurricane approaches, only to see them fall as the hurricane turns away from the oil facilities in the Gulf of Mexico region, or as concerns about having enough oil on hand when world total product demand peaks in the winter cause prices to go up in the summer. When oil markets are as tight as they are, relatively small changes in the actual or perceived supply and demand picture, which may result from seemingly innocuous news items, can have a magnified impact on oil prices. Simply put, any "fear" or "risk" premium would be hard to sustain without the fundamentals of supply and demand already being tight. EIA believes that supply and demand factors can explain almost all of the price increases seen over the last few years, particularly when it is recognized that demand for high inventories is rational under conditions of tight surplus capacity and supply uncertainty.

**Figure 2. WTI Crude Oil Price vs. OPEC Surplus Crude Oil Production Capacity, April 1999 - March 2006**




**Sources: WTI - Reuters; Surplus Capacity - EIA calculations**

**The Outlook for Oil Markets**

EIA's monthly *Short-Term Energy Outlook* is fairly representative with regards to projections of world oil prices and world oil market trends. However, for the reasons discussed above, it should be noted that energy price projections are particularly uncertain, because small shifts in either supply or demand can necessitate large short-term price movements to restore balance under current tight oil market conditions.

EIA has been saying for many months that the world oil market is tight, and that world oil prices are likely to remain high over the next 2 years. Most analysts now agree with this assessment, and last week the International Energy Agency (which does not make short-term price projections) went on record with this viewpoint as well. This is in contrast to the diversity of views expressed just last year, when many other analysts believed that prices were out of line with market fundamentals and would not remain high for an extended time.

In addition, EIA's assessment of world oil demand growth is similar to those of other analysts. EIA currently projects demand growth of 1.5 million barrels per day in 2006, within the 1.2 to 1.7 million barrels-per-day range of other forecasters. Analysts are more divided over the prospects for growth in non-OPEC total liquids production, with EIA's projections of 0.8 million barrels per day growth in 2006 on the low end. Most projections range between 0.9 and 1.4 million barrels per day, although several other forecasters have an even lower estimate of 0.5 million barrels per day.

According to EIA's most recent *Short-Term Energy Outlook*, released April 11, 2006, continued steady world oil demand growth, only modest increases in world surplus oil production capacity, and the continuing risks of geopolitical instability and weather are expected to keep crude oil prices high through 2006. The price of WTI crude oil is projected to average $65 per barrel in 2006 and $61 in 2007. We are currently in the process of compiling our May *Outlook* for release on May 9, which will likely incorporate some upward adjustment to projected prices in light of recent market developments.

World oil market conditions, growth in U.S. demand, and ongoing implementation of domestic fuel quality requirements are all expected to keep consumer prices for motor fuels and other petroleum products high in 2006. Higher crude oil costs together with higher margins (retail price minus crude oil cost and taxes, per gallon) are also expected to contribute to increases at the pump. Higher gasoline margins are likely because: 1) gasoline consumption is expected to grow solidly following weak growth in 2005; 2) Tier 2 gasoline requirements mandate further reduction in sulfur content this year; 3) phase-out of methyl tertiary butyl ether (MTBE) from the gasoline pool is likely to put significant pressure on ethanol and gasoline prices; and 4) there has been an unusual level of refinery outages due in part to hurricane-related deferred maintenance. Higher diesel fuel margins are expected because of the additional cost of producing ultra-low-sulfur diesel fuel later this year.

**EIA View of Capacity Additions.** In OPEC, surplus production capacity will remain tight in 2006, but EIA expects around 600 thousand barrels per day of surplus crude oil production capacity growth and 600 thousand barrels per day of non-crude production growth. Specifically, the UAE could add 200 thousand barrels per day from de-bottlenecking the Zakum and Umm Shaif fields. New crude oil production capacity at the Bonga and Erha fields in Nigeria has been offset by disruptions to Shell-owned, offshore oil production, and these recent disruptions could have longer-term implications for net supply growth from Nigeria. Algeria's production is expected to increase by 100 thousand barrels per day from increased oil and condensate production. Libya could also add 100 thousand barrels per day, primarily from enhanced recovery from existing fields. Iran and Indonesia are projected to lose capacity by 2007. This year, EIA expects non-OPEC total liquids supply growth of up to 800 thousand barrels per day, and we expect an additional 1.5 million barrels per day in 2007. One major portion of the increases in

non-OPEC supply in 2006 is simply recovery from the Gulf of Mexico hurricanes. Improvements to oil supply recovery technology in the Gulf of Mexico, recovery of the Mars production platform, and the beginning of production from the Thunderhorse and Atlantis fields account for a large portion of growth from the United States. By the fourth quarter of 2007, oil production from these fields is expected to account for about 10 percent of the lower-48 oil production. Outside of the United States, major supply additions in the Caspian, Brazil, and West Africa stem the decline in mature field production in the North Sea, Russia, the Middle East, and Mexico.

Major projects in Angola include the Chevron-led Benguela Belize project, of 200 thousand barrels per day, and the ExxonMobil-led Kizomba B and C projects, of 250 thousand and 240 thousand barrels per day, respectively. By the time these projects are all producing at their maximum rates in 2007 and 2008, they will have added almost 700 thousand barrels per day to Angola's existing production. In the Caspian, the BP-led consortium that is developing the Azeri-Chirag-Guneshli (ACG) project will increase production by around 400 thousand barrels per day between 2005 and 2007. The project operators maintain that they will be able to double Azerbaijan's existing production to around 1 million barrels per day by 2010. Finally, in Canada, conventional oil production in the Western Canada Sedimentary Basin will continue to decline at around 3 percent per year. Taking into account nonconventional growth from oil sands, EIA still expects 400 thousand barrels per day of net growth from Canada between 2005 and 2007.

Based on projects that are already in the pipeline, there is a strong likelihood that additions in OPEC and non-OPEC capacity will exceed demand growth between 2008 and 2010. World surplus production capacity could grow to 3 to 5 million barrels per day by 2010, substantially thickening the surplus capacity cushion, if demand projections prove accurate. A larger surplus capacity cushion would undoubtedly be beneficial. Based on recent experience, it is clear that geopolitical developments in oil-producing areas will also be important to the future supply situation, but EIA has no basis for projecting whether the overall stability of these areas will improve or deteriorate.

This concludes my testimony, Mr. Chairman and members of the Committee. I will be happy to answer any questions you may have.

CHAIRMAN BARTON. We thank you, Mr. Administrator.

We now want to hear from Dr. Daniel Yergin, who is recognized as one of the leading experts and consultants on the energy sector in the world today. We appreciate you being here.

DR. YERGIN. Thank you, Mr. Chairman.

And it is really an honor and a privilege to be able to join you, Mr. Chairman and members of the committee, as you conduct this timely set of hearings on America's energy situation.

As we all know, the deep concerns and the financial pressures that the American public are experiencing are what prompted this hearing, and I hope in the course of our discussions to be able to contribute a little bit to understanding the context.

There are many issues here at home to address, but I think if there is a single message I can leave you all with today, it is that we cannot begin to understand what is happening at the gasoline pump today unless we see it in the global context involving both crude supply, refining, and indeed foreign policy and geopolitics. So I am pleased to be here, and I

am very happy to be with the Administrator of the EIA, Guy Caruso, for whom I have great respect.

I want to try and answer four questions and maybe set them out as a framework for discussions.

First, the question on everybody's mind, we heard it today, why have prices doubled in the last two years. And as I say, you need to see it in a global context. There is not, today, a global shortage, but the oil market is very tight, pointing to rising demand and now, to what we can see, is this kind of slow-motion energy shock. We have developed the concept of an aggregate disruption to try and bring it together. We put that number at 2.2 million barrels a day, based upon Venezuela, Iraq, the Gulf of Mexico, and Nigeria.

Guy Caruso spoke about the risk premium, or the "fear" premium, or some call it a "security" premium. And we share the view that it really does derive from people looking at the fundamentals in the market. And at least our estimate right now is that it will be somewhere between $10 and $15 a barrel.

The second question is what are these high prices telling us about the futures world oil supply? Are we, indeed, running out, as some say? And to that, I answer the question: yes, indeed, we are running out, and indeed, this is the fifth time that we have run out of oil. The first time was in the 1880s. The last time, before this time, was in the 1970s, and since then, world oil production has increased by 60 percent.

In other words, what I want to suggest to you all today is that the prime risks are not the resources underground, but what is happening above ground: politics, geopolitics, policies, and a rebirth in some parts of the world of what sure looks like a 1970s-style resource nationalism, which is riding on this crest of high energy prices. We saw it unfolding there past few days in Bolivia, and it reminds us that, indeed, the broader context of geopolitics and foreign policy is very important to the whole energy picture.

There is, understandably, and we hear it all of the time, much focus on energy security. It will be the number one issue on the agenda when the G-8 nations meet in St. Petersburg in July. But one of the things that strikes me is that everybody is in favor of energy security, but there is not a lot of clarity on what do we mean by energy security.

So for this hearing, I wanted to offer a set of principles, which I will just do in shorthand, and though not offer them as a definitive list, but really as a process of dialogue or consideration. And there are ten of them.

One is diversification of supply. That is the starting point.

The second is the importance of a resilient security margin. The type of issue is capacity that Guy Caruso was talking about that gives us a buffer.

Three, and this is something that we forget a lot, is really the reality of integration. There is, at the end of the day, only one global oil market. There are not four or five different ones.

Fourth, and we see it whenever emotions get hot, the importance of quality information.

Fifth, and this is in response to some of the issues that have been raised, the need to engage countries, such as China, India, and Brazil, in the energy security system and to use the sort of idiomatic parliaments to understand where they are coming from on energy issues.

Sixth, something that I think is complicated, but very important, is extending the energy security concept to include the infrastructure and the entire supply chain. The hurricanes emphasized that.

Seventh is something that, frankly, I think is probably counterintuitive for these circumstances, recognizing that flexible markets are actually a source of security rather than insecurity. And I think we saw that in the response to the hurricanes last autumn.

Certainly, as we have heard, renewing the commitment to energy efficiency and conservation, strengthening the investment climate, which is an international issue, and the development and deployment of new technologies. So I offer those as ten elements about energy security.

The final overall point that I develop in my testimony is an urgent need to update the SEC-mandated system for defining proved oil reserves, because it is still done on the basis of technology from the late 1970s. It is this 1978 system. It provides a distorted view of our reserve base. It is as though saying that when you submit financial information to the SEC, you should use only typewriters and carbon paper. That is, more or less, what it is like. And this serves neither the interest of consumers, nor investors, nor that of energy security.

As I think Guy emphasized, we are really at a historic juncture right now. After a quarter century, this great cushion of surplus production capacity that was created by the energy turbulence of the 1970s and the early 1980s has been largely spent. It is gone, at least for the time being. And it is on that relatively narrow band of "spare capacity" that so much of the drama in the world oil market, and indeed at the gasoline pump, now plays out.

We all know, and it is a question for this hearing, why people are paying $3 a gallon or more today. But as I said, we won't find the answer if we only look inside the United States. Sometimes, as I hear the debate about energy, it seems to assume that we are an island; the United States is an island, albeit a very large continental island.

That is not the case, as we have already heard. We imported a third of our oil in the 1970s. Today, we import 60 percent. What this means is that we are highly integrated into the global marketplace, and we are surely affected by what happens in that marketplace.

We have to remind ourselves of scale. U.S. oil companies, for instance, produce less than 10 percent of the total oil that is produced in the world today. Sixty-five percent is produced by State-owned companies. They have over 80 percent of the reserves.

Today, that balance between supply and demand is very tight. As we have heard, part of the reason is the surge in economic growth in developing countries. China and India are the most noteworthy examples, although China grew by 16 percent in 2004. That caught everybody's attention. In 2005, China's demand grew by only 2 percent. And the data is still preliminary, but we will look to EIA for what is happening in data.

On refining, and I hear the numbers about all of the refineries that have disappeared. I think it is true, but an awful lot of those were the "teakettles" that were created in the 1970s to take advantage of what was called the "small refiner bias." These were very inefficient refineries. And I think we have to look at the overall aggregate refining capacity. That number went down until about 1993 or 1994. It has grown by about 15 percent since then, which is as though we have built ten new refineries in the United States, but we built them by expanding existing capacity. And part of the discussion, of course, is what we need to do to expand our capacity looking to the future.

But there, too, we have to look in a global context, because there is a global shortage of what is called "complex refining capacity," which is necessary to reflect the fact that European motorists love diesel cars. Over half of them buy diesel cars. Asia depends upon diesel fuel. We have complex refining capacity, but Europe and Asia don't have enough.

I think we can say that the focus of the market, which was on demand, has really now shifted to supply, and that we are experiencing, as I said, that slow motion supply shock. But what explains the rapid rise over the last eight weeks? There are three things that really stand out.

Number one is Nigeria, and I think there is an underestimation in the discussion about the significance of what has happened in Nigeria, the loss of that high-quality oil--which is so essential for making gasoline--and the uncertainty about whether we are going to lose more from Nigeria. Five hundred and fifty thousand barrels a day is missing from Nigeria. The last time there was a disruption like this a few years ago, it was like 800,000 barrels a day. That is one reason the market is nervous.

The second is the ratcheting up of tensions over Iran's nuclear program. We all know what has happened over the last month, and the

fear of disruption in one way or another of Iran's 2.5 million barrels a day of exports. Some Iranian spokesmen threatened to unleash an oil crisis while others seek to separate oil from atoms. But in this market, the threat of risk escalation is enough to send crude oil prices up. And sometimes, I think the chief speculator in the oil market today is the President of Iran.

The third factor that I want to just say, and you all know it very well, is clearly this rapid switchover from MTBE to ethanol. It has added to the pressures in the market. It comes at a difficult time. The spring is really when you see the pressure of the summer driving season, the additional pressures of the hurricanes. I think when the energy legislation was passed, no one knew that these hurricanes would, of course, follow, but it is very well to remember when we have these changes, doing it in compressed time is very difficult when we think in another few weeks we will be through it, but it is certainly something that should work now. So as I said, we think this transition, MTBE to ethanol, will be over by the time Americans begin their serious driving this summer. But there is little reason to think that the tension over Iran's nuclear program will abate, and much uncertainty about what will happen in Nigeria. And as we have heard, in terms of foreign policy, elsewhere in the world as well.

So, in terms of dealing with the situation that we now see, the $3 at the pump, the pain it is causing for American consumers, I think we have to look for the impact of fundamentals for price moderation. We need to look for the build-up of supplies from elsewhere. We need to look at the level of crude oil inventories. And we need to look to the response to higher prices on the part of consumers, on the part of investors, and indeed on the part of people in the Congress and other parts of the U.S. government who are entrusted with making wise decisions about our energy future.

Thank you.

[The prepared statement of Daniel Yergin follows:]

PREPARED STATEMENT OF DANIEL YERGIN, CHAIRMAN, CAMBRIDGE ENERGY RESEARCH ASSOCIATES

It is an honor and privilege to be invited to address this Committee as it begins its important and timely set of hearings on America's energy position. The deep concerns among the American public that are prompting this hearing are evident, and I appreciate the opportunity to contribute to understanding the context. I hope that I can provide a framework for your consideration. If there is a single message, it is that we cannot begin to understand what is happening at the gasoline pump unless we see it in the global context -- involving both crude supply and refining worldwide.

I hope in this hearing to answer four questions:

1. Why have oil prices nearly doubled during the past two years? What are the risks going forward? I would like to present what is happening at the pump in a global context. Although there is no actual supply shortage, the world oil market is very tight, owing not only to rising demand, but also to a "slow motion supply shock" -- what we have called an "aggregate disruption" in excess of two million barrels per day.
2. What are current prices telling us about the world's future oil supply? Oil is a non-renewable resource, but we do not believe the world is imminently facing the specter of running out. Or, to put it differently, this current period is the fifth time the world has run out of oil. The first time was in the 1880s and the last time before this time, in the 1970s – since which world oil production has increased 60 percent. The prime risks today are not lack of resources underground, but what is happening above ground … politics, geopolitics, and a rebirth in some parts of the world of 1970s style resource nationalism that is riding on the crest of high prices.
3. There is, understandably, much focus on energy security today. But what does the concept mean for the 21st century and how does it need to be updated from traditional definitions? I would like to offer these principles:
   a) Diversification of supply is the starting point
   b) Resilience, a "security margin" in the energy supply system that provides a buffer against shocks and facilitates recovery after disruptions.
   c) Recognizing the reality of integration – there is only one global oil market
   d) The importance of quality information
   e) The need to engage such countries as China, India, and Brazil in the energy security system
   f) Expanding energy security to the include the infrastructure and the entire energy supply chain
   g) Recognizing flexible markets as a source of security
   h) Renewing the commitment to energy efficiency and conservation
   i) Strengthening the investment climate itself
   j) Development and deployment of new technologies
4. Finally, I want to comment about the urgent need to update the SEC-mandated definition of proved reserves, which are still based on the technology of the late 1970s and, as a result, provides a distorted view of our reserve base. That serves neither the interests of consumers, nor investors, nor that of energy security.

## II Prices and the Security Premium

As the sense of these hearings indicates, we are at a historic juncture. After a quarter century, the great cushion of surplus oil production capacity that was created by the energy turbulence of the 1970s and early 1980s has been largely spent – at least for the time being. It is on that relatively narrow band of "spare capacity" that so much of the drama in world oil markets is playing out.

The American people clearly want to know why they are paying about $3 -- or more -- at the pump. But we will not find the answer if we only look inside the United States. Sometimes, the debate about energy prices seems to assume that the United States is an island – albeit a very large continental island.

That, of course, is not the case. In the 1970s we imported a third of our oil; today, it is on the order of 60 percent. Our oil imports are larger than the total oil consumption of any other country in the world. What this means is that we are highly integrated into the global marketplace – and are affected by what happens in the market.

Today, the balance between supply and demand in the world oil market is very tight. Part of the reason is the surge in economic growth in both developed and developing

countries – of which the growth of China and, to a lesser regard, India provide the most noteworthy examples. But the demand surge turned into slower growth in 2005 and the data is still preliminary for 2006.

Meanwhile, the focus of the market has shifted from demand to supply. We are currently experiencing that slow motion supply shock, the aggregate disruption of more than two million barrels per day, to which I referred before.

What explains the sharp rise in oil prices over the past eight weeks?

1. The first is the real disruption of a significant part of Nigeria's oil production owing to an insurgency in Nigeria's Delta region. Workers have been evacuated, and the local insurgents are threatening further attacks. This means the loss of a high quality light sweet oil particularly well-suited for making gasoline.
2. The second is the ratcheting up of tensions over Iran's nuclear program with a fear of a disruption of Iran's 2.5 mbd of exports. Some Iranian spokesmen threaten to unleash an "oil crisis" while others seek to separate oil from atoms. But in a market this tight, the risk of escalation is enough to send crude oil prices up.
3. The third factor is at home – the rapid switch over from MTBE to ethanol on the East Coast and in Texas has added pressure to what has been for a number of years the most difficult period in the gasoline market – the spring makeover of gasoline from winter to summer blends. This year's switchover has been made more arduous by the consequences of last year's hurricanes. Refineries need downtime for maintenance and to prepare for the switch to ultra-low sulfur diesel in the summer. The shifting from MTBE to ethanol has required changes all along the supply chain – different suppliers, different transportation (trucks and rail cars instead of pipelines) and different locations for blending (terminals instead of refineries.) Normally a change over like this would be done in a couple of years. As it turned out, 270 days a very compressed time for conversion in the face of other challenges, including the unexpected fury of the hurricanes that occurred after the passage of the energy bill.

We would expect that the transition will be complete by the time most Americans begin their serious summer driving. But there is little reason to think that the tension over Iran's nuclear program will abate, and much uncertainty remains over what will happen in Nigeria. So we must look to the impact of fundamentals for price moderation -- in the build-up of supplies from elsewhere, the relatively high level of crude oil inventories, and the demand response to higher prices.

**The Demand Surge**

The last decade has witnessed a substantial increase in the world's demand for oil, primarily because of the dramatic economic growth in developing countries, in particular China and India. As late as 1993, China was self-sufficient in oil. Since then, its GDP has almost tripled and its demand for oil has more than doubled. Today, China imports 3 million barrels of oil per day, which accounts for almost half of its total consumption. China's share of the world oil market is about 8 percent, but its share of total growth in demand since 2000 has been 30 percent.

The impact of growth in China, India, and elsewhere on the global demand for energy has been far-reaching. In the 1970s, North America consumed twice as much oil as Asia. In 2004 and 2005, for the first time ever, Asia's oil consumption exceeded North America's. The trend will continue: half of the total growth in oil consumption in the next 15 years will come from Asia, according to CERA's projections.

However, Asia's growing impact became widely apparent only in 2004, when the best global economic performance in a generation translated into a "demand shock"—

that is, unexpected surge in petroleum consumption that was more than double the annual average growth rates of the preceding decade. China's demand in 2004 rose by an extraordinary 16 per-cent compared to 2003, driven partly by electricity bottlenecks that led to a sharp rise in oil use for improvised electric generation. US consumption also grew strongly in 2004, as did that of other countries. The result was the tightest oil market in three decades (except for the first couple of months after Saddam's invasion of Kuwait in 1990).

The torrid pace of demand in 2004 did not continue into 2005. Last year China's demand grew by 1.7 percent – compared to the 16 percent in 2004 – and world demand grew just 1 percent.

**Refining Capacity**

**R**efining capacity is a major constraint on supply, because there is a significant mismatch between the refined product requirements of the world's consumers and refineries' capabilities. Although often presented solely as a US problem, inadequate refining capacity is in fact a global phenomenon. The biggest growth in demand worldwide has been for what are called "middle distillates": diesel, jet fuel, and heating oil. Diesel is a favorite fuel of European motorists, half of whom now buy diesel cars, and it is increasingly used to power economic growth in Asia, where it is utilized not just for transportation but also to generate electricity. But the global refining system does not have enough so-called deep conversion capacity to turn heavier crudes into middle distillates. This shortfall in capacity has created additional demand for the lighter grades of crude.

Nevertheless, refining is a high-focus issue in the United States. The number of U.S. refineries has gone down by about half since the 1970s. Many of these were the small "tea kettle" refineries that were intended to take advantage of the "small refiner bias" under the 1970s control system.

Yet what truly counts is not the number of refineries but the capacity – the number of barrels that can be produced. Here we see a different trend. Overall, capacity went down until the early 1990s and then began to increase again with larger, more efficient refineries. This does not reflect the building of new refineries, which has been hampered by costs, siting, and permitting. Rather it is expansion and upgrading of existing refineries and what is called "refinery creep"—which when added up has taken some big steps. Capacity is up 15 percent – 2.2 mbd – since then. This 2.2 mbd expansion in capacity is the equivalent of adding 10 new good-sized refineries over the last dozen years.

There is unease, of course, about dependence on imported refined products and possible threats to the supply chain. At this point, half of total refined products imports come from Western Europe, Canada, and the Caribbean (excluding Venezuela). Western Europe has been the largest source because it has excess gasoline production.

**Slow Motion Supply Shock: the Aggregate Disruption**

But what has now become clear in 2006 is that we are experiencing a slow motion supply shock – an aggregate disruption that, at present, we would put at 2.2 million barrels per day.

| | |
|---|---|
| Nigeria | 550,000 bd |
| Venezuela | 400,000 bd |
| Iraq | 900,000 bd |
| US Gulf | 324,000 bd |

A good part of Gulf of Mexico production is slated to soon start up again (as is hurricane season.) In the meantime, other transitory interruptions elsewhere in the world can, at least for short periods, take additional oil off the market.

These disruptions have, with the strength of demand, resulted in a very tight oil market and one that is more vulnerable to any further problems. Market psychology – anticipation of risk – becomes more powerful, translating into a scarcity or risk premium. We currently estimate that premium at $10 -15 a barrel. At the present time, the most important contributors to the premium are the unrest in Nigeria, and uncertainty about what will happen there, and the ratcheting up of tension over Iran's nuclear progress and the fear that in one way or another, Iran's 2.5 mbd of exports may be disrupted, with additional collateral effects. Without these circumstance, we would not be seeing oil over $70 per barrel.

**IV Growing Resource Base – and the "Undulating Plateau"**

As always happens when prices are high and supplies are uncertain, there is much discussion about whether the world is going to run out of oil. In the 1970s, the term was "the oil mountain," as in "the world was about to fall off the oil mountain." The geographic imagery has gotten higher -- today it is "peak." Our research leads us to conclude that "peak" is a misleading image. Based upon our analysis of oil fields and investment programs , and drawing on the databases of our parent company IHS, which has the largest collection of data on world production, we see a substantial buildup in world oil production capacity for a number of years. A more relevant description is "plateau" in production capacity that might be reached closer to the middle of the century.

We currently project worldwide liquids production capacity (not actual production) to grow from 88.7 mbd in 2006 to 105.3 mbd in 2015. This involves a growing role for non-traditional liquids – oil sands, gas-to-liquids, ultra deep water. This represents a widening of the definition of oil. Such a development and accords with the history of the industry, in which non-conventional technologies are introduced and, over time become conventional.

The risks are not below ground, in terms of shortage of resources, but above ground – political decisions by governments, conflict, natural disaster, or price volatility. Rising costs and shortage of people are also of concern. Our *CERA Capital Costs Index* indicates that offshore costs are up 42 % since 2000 – and 14% just in the last half-year.

After 2010, growth in capacity will be concentrated in what we call the "0il 15" – which will likely cause increased foreign policy concern.

I want to emphasize that this outlook does not detract, at all, from the need to develop new technologies, new energy options, alternatives, and new unconventional production. It does argue strongly for a need to integrate energy and foreign policy in a considered way – a point I will develop later.

**Modernizing Reserve Disclosure**

I have spoken about the need to understand future resources and to expand our concepts of energy security. Let me mention one area in which the US government could address both. The system for reserves disclosure mandated by the Securities and Exchange Commission was established by the US Congress in the mid-1970s, after the first Oil Shock, for reasons of energy security – to answer the questions "how much oil is actually there?"

The "1978 System," as put in place reflects the best practices of the time. It was based upon the 1965 definition of The Society of Petroleum Engineers (SPE) and discussions in the 1970s. Since then, the SPE has revised its definition three times and is in the process of doing so again. However, the SEC's system still relies on the definition

of 1965 and the practices of the 1970s. Thus registrants are basically restricted to the technology of those years in reporting reserves – which has led to a growing divergence between what is reported under the SEC's 1978 system and how companies, using more modern technologies and tools, assess their own reserve position, on which they base investments of hundreds of million of dollars – and, now more frequently, several billion dollars.

The changes have been enormous since the 1970s. Back then there was no digital revolution, and the frontier for offshore developments was 600 feet of water; today it is 12,000 feet. The rules do not recognize the vast technical progress over the last 30 years, and as a result, standard techniques used today by companies to set multibillion investment programs are not approved, or only partly approved, for use in describing proved reserves for disclosure purposes to investors.

In addition, the rules simply have not kept up with the globalization of the industry. They were devised for onshore operations in "Texlahoma," the "oil patch" of Texas, Louisiana and Oklahoma that was the center of industry activity in the '50s and '60s. Today more than 80% of the total of companies' proved reserves are outside the US; and the differences among the fiscal regimes in several countries make it harder, not easier, to compare domestic and international reserves. As perverse as it may sound, under the "production sharing agreements" that are common in many oil-producing countries, when the price goes up, the proved reserves go down.

Major projects today dwarf those in the past, both in size and complexity. "Non-traditional projects: are drawing on increasing share of capital, but they are not adequately accommodated under the "1978 system." This includes a significant part of Canadian oil sands, gas-to-liquids and projects in what's called the "ultra-deep-water." And yet these "non-traditional-liquids will account for as much as 45% of oil production capacity in North America by 2010. Nor does the current system fully account for larger, commodity-driven liquefied natural gas business that will be critical to the future US natural gas supplies.

But the industry is still required to report using the technology of the 1970s -- when no one had a cell phone or a personal computer, let alone access to the Internet. It is as though companies preparing financial reports to the SEC in 2006 could do so only use typewriters and carbon paper. Modernizing the reserves disclosure would clearly improve understanding of the resource base and its potential and provide clarification for purposes of energy security.

**Energy Security in the 21st Century**

What has been the paradigm of energy security for the past three decades is too limited and must be expanded to include many new factors. Moreover, it must be recognized that energy security does not stand by itself but is lodged in the larger relations among nations and how they interact with one another. Energy security will be the number one topic on the agenda when the group of eight highly industrialized countries (G8) meets in St. Petersburg in July. The renewed focus on energy security is driven in part by an exceedingly tight oil market and by high oil prices, which have doubled over the past three years. But it is also fueled by the threat of terrorism, instability in some exporting nations, a nationalist backlash, fears of a scramble for supplies, geopolitical rivalries, and countries' fundamental need for energy to power their economic growth.

Concerns over energy security are not limited to oil. When it comes to natural gas, rising demand and constrained supplies mean that North America can no longer be self-reliant, and so the United States is joining the new global market in natural gas that will link countries, continents, and prices together in an unprecedented way.

At the same time, a new range of vulnerabilities has become more evident. Al Qaeda has threatened to attack what Osama bin Laden calls the "hinges" of the world's

economy, that is, its critical infrastructure—of which energy is among the most crucial elements. The world will increasingly depend on new sources of supply from places where security systems are still being developed. And the vulnerabilities are not limited to threats of terrorism, political turmoil, armed conflict, and piracy. In August and September 2005, Hurricanes Katrina and Rita delivered the world's first integrated energy shock, simultaneously disrupting flows of oil, natural gas, and electric power.

The key to energy security has been diversification. This remains true, but a wider approach is now required that takes into account the rapid evolution of the global energy trade, supply-chain vulnerabilities, terrorism, and the integration of major new economies into the world market.

The current energy security system was created in response to the 1973 Arab oil embargo to ensure coordination among the industrialized countries in the event of a disruption in supply, encourage collaboration on energy policies, avoid bruising scrambles for supplies, and deter any future use of an "oil weapon" by exporters. Its key elements are the Paris-based International Energy Agency (IEA), whose members are the industrialized countries; strategic stockpiles of oil, including the US Strategic Petroleum Reserve; continued monitoring and analysis of energy markets and policies; and energy conservation and coordinated emergency sharing of supplies in the event of a disruption.

Experience has shown that to maintain energy security countries need to recognize several key principles.

1. The first is diversification of supply. Multiplying one's supply sources reduces the impact of a disruption in supply from one source by providing alternatives, serving the interests of both consumers and producers, for whom stable markets are a prime concern. But diversification is not enough.
2. A second principle is resilience, a "security margin" in the energy supply system that provides a buffer against shocks and facilitates recovery after disruptions. Resilience can come from many factors, including sufficient spare production capacity, strategic reserves, backup supplies of equipment, adequate storage capacity along the supply chain, and the stockpiling of critical parts for electric power production and distribution, as well as carefully conceived plans for responding to disruptions that may affect large regions.
3. Hence the third principle: recognizing the reality of integration. There is only one oil market, a complex and worldwide system that moves and consumes about 86 million barrels of oil every day. For all consumers, security resides in the stability of this market. Secession is not an option.
4. A fourth principle is the importance of information. High-quality information underpins well-functioning markets. Information is crucial in a crisis, when consumer panics can be instigated by a mixture of actual disruptions, rumors, and fear. Reality can be obscured by accusations, acrimony, outrage, transforming a difficult situation into something much worse. In such situations, governments and the private sector should collaborate to counter panics with high-quality, timely information.

As important as these principles are, the past several years have highlighted the need to expand the concept of energy security in two critical dimensions:

5. the recognition of the globalization of the energy security system, which can be achieved especially by engaging China and India, and
6. the acknowledgment of the fact that the entire energy supply chain needs to be protected.

It is important to get China's situation into perspective. Despite all the attention being paid to China's efforts to secure international petroleum reserves, for example, the entire amount that China currently produces per day outside of its own borders is equivalent to just 10 percent of the daily production of one of the supermajor oil companies. If there were a serious controversy between the United States and China

involving oil or gas, it would likely arise not because of a competition in a well-functioning global market for the resources themselves, but rather because they had become enmeshed in larger foreign policy controversies (such as a clash over a specific regime or over how to respond to Iran's nuclear program). Indeed, from the viewpoint of consumers in North America, Europe, and Japan, Chinese and Indian investment in the development of new energy supplies around the world is not a threat but something to be desired, because it means there will be more energy available for everyone in the years ahead as India's and China's demand grows.

It would be wiser—and indeed it is urgent—to engage these two giants in the global network of trade and investment rather than see them tilt toward a mercantilist, state-to-state approach. Engaging India and China will require understanding what energy security means for them. Both countries are rapidly moving from self-sufficiency to integration into the world economy, which means they will grow increasingly dependent on global markets even as they are under tremendous pressure to deliver economic growth for their huge populations, which cope with energy shortages and blackouts on a daily basis. Thus, the primary concern for both China and India is to ensure that they have sufficient energy to support economic growth and prevent debilitating energy shortfalls that could trigger social and political turbulence.

The concept of energy security needs to be expanded to include the protection of the entire energy supply chain and infrastructure. None of the world's complex, integrated supply chains were built with security, defined in this broad way, in mind. Hurricanes Katrina and Rita brought a new perspective to the security question by demonstrating how fundamental the electric grid is to everything else.

Energy interdependence and the growing scale of energy trade require continuing collaboration among both producers and consumers to ensure the security of the entire supply chain. Long-distance, cross-border pipelines are becoming an ever-larger fixture in the global energy trade. There are also many chokepoints along the transportation routes of seaborne oil and, in many cases, liquefied natural gas (LNG) that create particular vulnerabilities.

The challenge of energy security will grow more urgent in the years ahead, because the scale of the global trade in energy will grow substantially as world markets become more integrated. Currently, every day some 40 million barrels of oil cross oceans on tankers; by 2020, that number could jump to 67 million. By then, without major technical changes, the United States could be importing 70 percent of its oil (compared to 58 percent today and 33 percent in 1973), and so could China.

But in the United States, as in other countries, the lines of responsibility—and the sources of funding—for protecting critical infrastructures, such as energy, are far from clear. The private sector, the federal government, and state and local agencies need to take steps to better coordinate their activities.

7. Markets need to be recognized as a source of security in themselves. The energy security system was created when energy prices were regulated in the United States, energy trading was only just beginning, and futures markets were several years away.

Today, large, flexible, and well-functioning energy markets provide security by absorbing shocks and allowing supply and demand to respond more quickly and with greater ingenuity than a controlled system could. Such markets will guarantee security for the growing LNG market and thereby boost the confidence of the countries that import it. There is much to be said in terms of resisting the temptation to intervene and micromanage markets. . Intervention and controls, however well meaning, can backfire, slowing and even preventing the movement of supplies to respond to disruptions. At least in the United States, any price spike or disruption evokes the memory of the infamous gas lines of the 1970s. Yet those lines were to a considerable degree self-inflicted—the

consequence of price controls and a heavy-handed allocation system that sent gasoline where it was not needed and denied its being sent where it was.

Contrast that to what happened immediately after Hurricane Katrina. A major disruption to the US oil supply was compounded by reports of price spiking and of stations running out of gasoline, which together could have created new gas lines along the East Coast. Yet the markets were back in balance sooner and prices came down more quickly than almost anyone had expected. Emergency supplies from the US Strategic Petroleum Reserve and other IEA reserves were released, sending a "do not panic" message to the market. At the same time, two critical regulatory restrictions were eased. One was the Jones Act (which bars non-US-flagged ships from carrying cargo between US ports), which was waived to allow non-US tankers to ship supplies bottlenecked on the Gulf Coast around Florida to the East Coast, where they were needed. The other was the set of "boutique gasoline" regulations that require different qualities of gasoline for different cities, which were temporarily lifted to permit supplies from other parts of the country to move into the Southeast. The experience highlights the need to incorporate regulatory and environmental flexibility—and a clear understanding of the impediments to adjustment—into the energy security machinery in order to cope as effectively as possible with disruptions and emergencies.

7. The US government and the private sector should also make a renewed commitment to energy efficiency and conservation. Although often underrated, the impact of conservation on the economy has been enormous over the past several decades. Over the past 30 years, US GDP has grown by 150 percent, while US energy consumption has grown by only 25 percent. In the 1970s and 1980s, many considered that kind of decoupling impossible, or at least certain to be economically ruinous. Current and future advances in technology could permit very large additional gains, which would be highly beneficial not only for advanced economies such as that of the United States, but also for the economies of countries such as India and China (in fact, China has recently made conservation a priority).
8. The investment climate itself must become a key concern in energy security. There needs to be a continual flow of investment and technology in order for new resources to be developed. The IEA recently estimated that as much as $16 trillion will be required for new energy development over the next 25 years. These capital flows will not materialize without reasonable and stable investment frame-works, timely decision making by governments, and open markets.

**New Technologies**

9. Development of new technologies will remain the fundamental starting principle of energy security for both oil and gas. This will require new generation of nuclear power and "clean coal" technologies and encouraging a growing role for a variety of renewable energy sources as they become more competitive. It will also require investing in new technologies, ranging from near-term ones, such as the conversion of natural gas into a liquid fuel, to ones that are still in the lab, such as the biological engineering of energy supplies. Investment in technology all along the energy spectrum is surging today, and this will have a positive effect not only on the future energy picture but also on the environment.

We talked earlier of the widening definition of oil. We will also see the widening definition of gasoline with what has recently become a broad commitment to introducing ethanol into the gasoline pool. Undoubtedly we will see a substantial growth of ethanol and the infrastructure to support it. But we have to remember the overall scale of the target envisioned in the 2005 legislation would be about five percent of total supply.

Given the current incentive to step up in investment, the number could be somewhat higher. Achieving much larger objectives depends on substantial advances in the science of cellulosic ethanol. Certainly this will be a major focus of effort in the years ahead.

Finally, we must return to the larger context. Energy security indeed exists in a larger context. In a world of increasing interdependence, energy security will depend much on how countries manage their relations with one another, whether bilaterally or within multilateral frameworks. That is why energy security will be one of the main challenges for US foreign policy in the years ahead. Part of that challenge will be anticipating and assessing the "what ifs." And that requires looking not only around the corner, but also beyond the ups and downs of cycles to both the reality of an ever more complex and integrated global energy system and the relations among the countries that participate in it.

CHAIRMAN BARTON. Thank you, Dr. Yergin.

The Chair is going to recognize himself for the first round of questioning.

I want to thank each of you for your testimony. It is refreshing to have a discussion that it is non-demagogic, about the oil industry. I want to start with a general question that each of you may want to address.

Each of you has indicated that the cushion between production and reserve capacity is almost non-existent, that we produce about 85 million barrels of oil worldwide, and we are using about 85 million, maybe 84 million. What were the events, say, 10 years ago, and what would it be helpful if they were today, i.e., if we had a 5 million barrel reserve margin or a 10 million barrel reserve margin. What would that do to the price structure?

MR. CARUSO. About 10 years ago, world surplus capacity was between three and four million barrels a day. And in the mid-1980s, when prices collapsed, those of you who remember in 1986, world excess capacity actually reached 11 million barrels a day. Then prices were averaging about $12 a barrel that year. So we are talking about if you had to pick one key factor, surplus productive capacity, there is a chart in my testimony, shows how critical that is, that as you move towards the 5-million-barrel-a-day mark and higher, then you get back to what we have observed as a historical average of around $20 a barrel in the world oil market.

CHAIRMAN BARTON. Is 5 million barrels kind of the minimum?

MR. CARUSO. It is very difficult, because it is not only the absolute number but, as has been eloquently pointed out, in the context of what kind of geopolitical environment are you in. I think we are not only right now in the worst of both worlds, we have 1 or 1.5 million barrels a day of surplus--

CHAIRMAN BARTON. Well, could you postulate a theory that you need enough reserve capacity to take the expected increase this year and next year with, then, maybe another million barrels on top or something like that? If you had a "world energy czar" and they adopted that as a

strategy, would that alleviate some of the price pressure that we have today at retail?

MR. CARUSO. In my view, it would.

CHAIRMAN BARTON. Because that would take some of the speculative pressures off.

Well, the question I would ask you, Dr. Yergin, given this tightness of the supply reserve margin cushion and these high prices we have had, why has there not been more of a response on the production side in these countries that have large proven reserves?

DR. YERGIN. Right. I think you have to look at each country. Venezuela has had a 400,000 barrel-a-day decline in production capacity since the turmoil there in 2002 and 2003. I think Russia was on a very strong up growth, but changes there and the shift there has meant that Russian growth is much lower. I think that when prices are high, governments don't feel the pressure or the need for revenues, and so they put a lot less focus on--

CHAIRMAN BARTON. Take a country like Mexico, if there is ever a country that has a revenue pressure on it because of its economy and the growth of its population, why would they not significantly expand production on their proven reserve base, given these prices?

DR. YERGIN. Well, I think Mexico is constrained by the nature of its political system from responding, and it needs more investments in its sector. They don't have the capital to do it. It needs technology to go out into deep waters and so forth, and it is not doing that. And I think if you look at the battles over the last 6 years, 5 years, and Mexico's political system, an awful lot of it has been do you open up their sector to international investment, which would certainly lead to higher production and ultimately would lead to higher government revenues.

CHAIRMAN BARTON. Well, is there any evidence, either one of you gentlemen, that the current price level is encouraging proven reserves coming on line in some of the nations that actually have large reserve bases?

DR. YERGIN. Well, I think the country where you can see and it is pretty clear a substantial increase is coming, of course, is Saudi Arabia, which has a $50 billion program to increase capacity. The other thing is you can see that the spending, where you can see it by companies around the world, is increasing very substantially to invest, but it is also coming at a time that costs are going up pretty rapidly in the industry. Our cost index shows the costs of developing, let us say, an offshore field in the Gulf of Mexico, doing it today would be 42 percent more expensive than it would have been 5 years ago. So people are increasing investment, but it is also up against an industry that is very short of people. There is

another capacity to add to Guy's capacity, the shortage of people, equipment, and skills.

CHAIRMAN BARTON. Okay. My time has expired. I want to ask one more question. And I could ask questions for the next hour, but obviously, with all of the Members here, that is not fair.

I want each of you to speculate a little bit on what is happening in the futures market by speculators, and what would the reaction be if we raised the margin requirement on the energy futures market from the current requirement, 2 or 3 percent, to 35 percent or 50 percent, something like it is in the stock market. Dr. Yergin, in your testimony, said that the estimates are that speculation adds $10 to $15 a barrel or maybe 10 to 15 percent.

DR. YERGIN. Ten to 15 dollars a barrel.

CHAIRMAN BARTON. So what would happen, because that is something this Congress could do.

DR. YERGIN. Yes.

CHAIRMAN BARTON. We could have a margin requirement increase on the floor two weeks from now, maybe even next week. What would that do to drive the speculators out of the market and bring the price down? And what would that do for the people, the hedgers and the traders who actually use the futures market in their daily business regime?

DR. YERGIN. I think that, obviously, that is really getting to the next panel, but I would say that one of the new things in the market is that it is not only the traditional traders and hedgers and so forth, but also you have an awful lot of pension fund money, endowment money, and so forth, that is going into the oil market, seeing oil as a financial instrument, and that is long-term passive money.

CHAIRMAN BARTON. They are in the futures market?

DR. YERGIN. Yes, they are buying the commodity.

CHAIRMAN BARTON. A pension fund is buying a futures fund?

DR. YERGIN. Yes, pension funds now believe that they need to diversify into their asset classes, and one of their asset classes is commodities. And what commodity looms larger than oil? None. So that is part of their diversification. So that is part of it. As to what the right percentage for the margin requirements is, that is not something that I have studied so that I could give you an answer for that.

CHAIRMAN BARTON. Well, make a guess.

DR. YERGIN. Well, I think if you raise the margin requirements, would it reduce the volatility? I don't know. Guy, what do you think?

MR. CARUSO. I am not sure, probably a bit less. Our analysis, what should I say, we don't think the speculative part of the price is quite as high as $10 to $15, but there is clearly an upside bias to this market. It is

because most people perceive the risk to be on the upside. Now by raising the margin requirements, it certainly would make the cost of business for legitimate speculators on the market more expensive, but I think, my understanding is the CFTC now has very tight regulations on NYMEX, for example. So I am not so clear it would really achieve the stability that you are looking for. And I think volatility plays a role in the marketplace. It reflects the uncertainty that is out there. And ultimately, the physical market brings the futures and the paper market back down. It can't get too far out of line because of the arbitrage and the normal hedging that takes place. So my own view is it probably wouldn't reduce volatility that much.

DR. YERGIN. Mr. Chairman, if I could add one other thing. I think when I assumed that $10 to $15, I think we wouldn't say it is a speculative premium so much as a "security" or a "fear" premium, because the President of Iran makes a very apocalyptic statement, and I think that participants in the market, whether they are traders, whether they are people worrying about long-term supplies, what they are looking at is it reflects the fear that maybe there will be a disruption, and it may be more of a shortage. So I just wanted to separate out the speculative from what is really driven by, ultimately, a concern about the fundamental.

CHAIRMAN BARTON. I understand that, but there is a difference when an airline is using the futures market to try to hedge the price of fuel or a producer who wants to make sure they lock in a certain price for their product than somebody who is just literally, "Well, I think the price is going to go up. I think the price is going to go down." And buying a futures contract purely on speculation. They have no intention to use the contract for anything other than to make or lose money. There is nothing wrong with playing the markets to make or lose money, but this particular commodity, at this particular time, if those participants in the market are a larger percentage than normal, I think it is a legitimate government function to consider raising the margin requirement to make it more difficult to just purely be speculative in the market.

Let us see. Mr. Gonzalez would be the senior Member here who was here at the start of the bell.

MR. GONZALEZ. Thank you very much, Mr. Chairman.

And I share with you the concerns regarding the investments by pension funds and such and highly speculative investments, but I do believe, and I will have to look at it, one of my concerns was actually included in the Republican Pension Reform Bill out of the House, which actually lowered the threshold to allow these pension funds to get into the hedge markets and investments. And so maybe we ought to have that

discussion on another day, but it is out there, and it is very real. And I share your concerns.

My question. Mr. Caruso, when was the last time you testified here? It wasn't that long ago. A few months ago?

MR. CARUSO. Well, after the Katrina.

MR. GONZALEZ. And at that time, I think, you had some projections or predictions on the price of gasoline. And I believe you were right on until very recently. Do you remember what your predictions were? I don't have my notes. I just remember you--

MR. CARUSO. I think last fall, we were looking at an average gasoline price for the United States this year would be around about $2.40. So we were lower than the way they are going right now, largely because I think our crude price projection was around $60, and now we are probably looking at $66 or $67.

MR. GONZALEZ. So a lot of what we do, government agencies, departments, Members of Congress, when we look to the future, this is something that really is not that predictable depending on all of these other conditions?

MR. CARUSO. Correct.

MR. GONZALEZ. Yes. Because I mean, when we went back to our district, we were telling them that basically government officials were telling us, and you were actually right. I mean, I was really surprised that you were that accurate at that point in time. I hate to say that, you know, now your batting average in the past couple of weeks is really bad.

Mr. Yergin, this is really amazing. You know, I come from Texas, Mexican-American descent and such, and it is a heartbreaker to think that PEMEX is not more than it can be. Are there any estimate studies out there showing what the potential output would be of Mexico and, of course, the Gulf Coast? What would they be adding as far as the output? What is the potential out there that is untapped, and for whatever reason, may remain untapped?

DR. YERGIN. Well, the Mexican Oil Minister came to our conference in Houston in February, and he presented this map of the U.S. Gulf of Mexico, which showed lots of black points in the U.S. sector of the Gulf of Mexico and almost none in the Mexican sector. And yet, you can't really believe that those oil and gas resources just end at the boundary line, because they were there a long time before the boundaries came in, so I can't put a number on it, but I think that Mexico could be a substantially larger producer, which would be good for Mexico, and it would be good for Mexico's neighbors.

MR. GONZALEZ. The other thing is, as I think you pointed out, the importance of our international policy and what we do here domestically and how it impacts our relationships with these particular oil-producing

countries. We are involved in a highly contentious immigration proposed legislation that demonizes, in essence, the undocumented worker and the family coming from Mexico and parts of Latin America. Do you see a downside? Do you see any implication? Do you see any consequences of that policy and its potential impact on our relationship with any oil-producing country in that area?

DR. YERGIN. Well, I don't know how this whole issue is playing in Mexican politics. I think the issues over Mexico's oil, whether they open up their system or not, goes back to the Mexican Revolution and to the nationalization of 1938, which is one of the most important political events in Mexico's history. And I think that a lot will depend upon who is elected this year in Mexico. As I think several Members have remarked, there are a lot of adverse geopolitical trends in the world, and certainly we have seen a kind of clash now, or a conflict, in Latin America between what you might call the hard left, return to socialism, and the sort of center left as to how engaged or not engaged to be with the world economy. And I think how that plays out is something we haven't been, as a country, giving that much attention, except sporadically. I think that, over the next few years, is something that will loom more significantly.

MR. GONZALEZ. And one last question. First of all, and of course, part of the House bill has a 700 mile-long wall being built along the Mexican border. Should we be considering an exception for pipelines just in case?

DR. YERGIN. That is--

MR. GONZALEZ. I am making jest, but this is--

DR. YERGIN. Mexico actually--

MS. BONO. Would the gentleman yield for one second?

MR. GONZALEZ. No, I am actually going to be--

MS. BONO. Oh, excuse me.

MR. GONZALEZ. But I do have a question.

If we send back $100 to all of the consumers out there, if we have a windfall profit tax and we suspend the Federal gasoline tax, and some States suspend it, what is the implication? What is the real consequence to the consumer out there when they are paying $3 for a gallon of gas? How temporary is this fix? Is it really long term? What I want to know is, is it practical and of any real significance.

DR. YERGIN. I think the number one factor, there are other domestic factors we have talked about, how specifications come in, fuel changes, and the others like refining capacity. But at the end of the day, it is the crude oil and the price of crude oil that is really the largest determinant, and that is determined in the world.

MR. WHITFIELD. [Presiding.] The gentleman's time has expired. Thank you.

I will recognize myself now.

I was reading an article the other day, and it was talking about that over the last year, Saudi Arabia had increased its drilling rig count from 38 to 42. And it says that all four of these have been contracted for offshore work, two for work-overs and two for exploration. And it went on to say that Saudi Arabia has been trying to get rigs from all over the world and has not been successful, which raises this question. One of you mentioned that in the 1980s, with prices going down to $10 a barrel, and it is my understanding that in the 1980s, although I was not particularly focused on the oil business at that time, that big companies went out of business, particularly oil and gas service companies that failed to service, and that as a result of that, we lost a lot of technical knowledge because a lot of people did not go to engineering school for oil exploration and service, and that there is a real lack of supply in that whole area right now. And I would ask you all, would you agree with that analysis? And if so, what kind of impact does that have on prices?

MR. CARUSO. Well, I would absolutely agree with that. We lost about two decades of supply of engineers and other petroleum-skilled workers. And now, there is a shortage everywhere you go, whether you are in Canada, in Saudi Arabia, or in Texas. There is a real lack of skilled workers in the petroleum industry, and that is definitely part of this story in addition to the infrastructure that you mentioned. The rigs availability are very tight. Steel is very tight. Even cement for drilling. So the resource, concerns in that story from chief executive officers, whether it be a national oil company or an international oil company. So it is absolutely a factor.

MR. WHITFIELD. It seems like if you had the adequate reserves, it would be very difficult, I mean, that the new market is just so tight on this supply and the training personnel. It is a significant issue.

DR. YERGIN. Yes. And it takes time to gear up. Academic programs that crunched in and then collapsed are now expanding again, but it takes time to put them back.

MR. WHITFIELD. Right.

DR. YERGIN. So right now, you see very active hiring campaigns in the industry, but it is a lot of hiring from each other as they try and bring in more people and more equipment.

MR. WHITFIELD. Right. Now my recollection was that during Katrina, the United States lost, what, about 15 percent of its refinery capacity. Is that the right number? Is it 10 to 15 percent?

MR. CARUSO. Yes. At one point, it was even higher than that, but the sustained reduction in capacity was about 15 percent.

MR. WHITFIELD. And on the production side, it was about one million barrels a day. Is that corrected?

MR. CARUSO. Initially, 1.5 million, and even now, it is still 300,000 barrels a day.

MR. WHITFIELD. Okay. And it is my understanding that also in the spring is when refineries normally do their maintenance. Is that correct or is that not correct?

MR. CARUSO. Well, there are different schedules. Sometimes they are done in the fall or in the spring. What happened this last six months is that many of the refineries deferred the fall maintenance because of the amount of refineries still down. They kept running and oftentimes pushing capacity probably very hard, and therefore, there was a large amount of deferred maintenance this spring that is contributing to the current gasoline situation.

MR. WHITFIELD. So that is definitely having an effect because this spring, they are having to do more because of the push in the fall?

MR. CARUSO. Yes.

MR. WHITFIELD. Okay. Now it is my understanding that in order to refine heavy, sour crude, it is much more difficult than it is light, sweet crude. That is correct, isn't it?

MR. CARUSO. Yes.

MR. WHITFIELD. And I have heard that in order to do heavy, sour crude, that you have to have retooling of the U.S. refineries. What does that refer to? Retooling? What does that mean?

MR. CARUSO. Well, the U.S. refineries are among the most sophisticated in the world, so we have more ability to convert heavy, sour crude into the product slates we need. It is not enough. We need more. We are probably importing about 1.5 million barrels a day of gasoline this summer. So we need more conversion capacity to deal with this heavier, sour crude slate. But it is critically important in places like China where they have been relying on their own domestic crudes for so many years, and those were lighter and sweeter. Now they are having to input heavier, sour crude, and they don't have the capability to turn it into diesel fuel and gasoline, and that is what is putting a lot of pressure on light crudes and is why Nigeria is so important. Nigeria produces light, sweet crude. A lot of it was going to China. And the diminution of Nigerian production is really affecting this factor.

MR. WHITFIELD. One last question.

Which country is producing the most heavy, sour crude?

MR. CARUSO. I would say Saudi Arabia.

MR. WHITFIELD. Saudi Arabia?

MR. CARUSO. Yes.

DR. YERGIN. Some of the Mexican grades are also at that quality, some of the Venezuelan, then Saudi, and some of the other Middle Easterns. So they have a range of grades, but the spare capacity that does exist in Saudi Arabia is primarily this heavier, sour crude for which there is not the refining capacity around the world, not just in the United States, to convert it into gasoline or diesel.

MR. WHITFIELD. Yes. Okay. Thank you very much.

My time has expired. I will recognize Mr. Green from Texas.

MR. GREEN. Thank you, Mr. Chairman, Mr. Caruso, and Mr. Yergin. And I apologize for not being here. This is the biggest issue we are getting calls on, more than immigration and the other issue.

I note in your opening statement you talked about, Mr. Caruso, the loss of the gasoline supply and the impact it will have in the ethanol we need to replace it, particularly in areas like Houston. It is a non-attainment area, and it has cleaned up our air since 1991 and 1992 when we first started using it. And again, I just heard yesterday that the President was talking about relieving the imports that our ethanol market production can ramp up. My concern is that I want to make sure we produce, in our own country, whether it is oil or not. I would love to drill for oil and then refine it in our own country instead of again depending on other parts of the world where stability is always in question.

For both of you on the change from MTBE to ethanol, and I know, Mr. Yergin, I heard you say something about that you thought that the change would not have any impact some time during the summer. That may be a bit optimistic, but I would like you to say it again.

DR. YERGIN. Right. Well, I think that you did see that the refining industry has a lot of resilience, too. It is a tough transition because you needed to change the suppliers; you weren't using chemical companies anymore. You were getting ethanol from corn. You couldn't ship it in pipelines, so you had to ship it in trucks and railway cars. And then you don't blend it at the refinery. You blended it at the terminal. So you get all of those things. You are basically changing your whole, what they call, the supply chain, and you are doing it when you have all of these other problems. But it looks like maybe a little optimistic, but I would think in 4 or 5 weeks before people really hit the roads, that changeover will be complete.

MR. GREEN. You do think we need to delay or eliminate the import fees for ethanol from other countries?

DR. YERGIN. Well, I know the Brazilians feel passionately on that subject, since there is a 54 cent-a-gallon import fee on it. And it would be interesting to see, as we get up against the limits of domestic with conventional ethanol production, whether there will be a drive to allow

some more ethanol into the country, if that is the objective. And, you know, we never thought of Brazil before as an energy power, but it is on the basis of ethanol. It has the leadership.

MR. GREEN. Again, on the import, as long as we need it, until we ramp up, because like I said earlier, I would like to have an ethanol refinery somewhere, which we don't have on the Texas Gulf Coast, but we do refine a lot of gasoline. But we also need that reformulated gas in the Houston market. So we will have to have it somewhere there. And of course, we could import it on the short term, but I would much rather produce it there, because that is what we do historically is produce energy.

How does the instability in oil-producing nations today compare with some of the worst times in history, such as the Arab oil boycott? And what are some of the major international developments that could bring down or further increase the price of oil, one way or the other? I mean, obvious ones are continued problems in Nigeria and, of course, Iran, even though we don't import it from Iran. It still affects the price.

DR. YERGIN. You know, people note that 25 years ago the oil and gold prices were both the highest they have been for 25 years, and you say, "Oh, what was happening 25 years ago? Oh, it was Iran." And you know, here we are again. So my sense is that how this confrontation between Iran and the international community is going to play out, no one has a very good handle on it at all, so I think that shadow is going to be over the oil market for some time.

Nigeria, I think, and this goes back to the question that was asked of Guy about his forecast, I don't think anybody really saw, including the Nigerian government, this insurgency in the delta, which had its big impact. It sort of just started sporadically in January or February and suddenly went up in scale. And after the workers were taken hostage and threatened and people killed, people withdrew their workers in that area, and we are seeing the impact of that. You look around the world and those are two things we are focused on. And looking around the world, where else are there issues that maybe won't have the same scale of importance, but could add to the pressure right now? So on the one hand, you see maybe we are seeing a demand response, which takes the pressure off, but on the other hand, where is the next problem going to come from that might take out another couple hundred thousand barrels a day. And I think the other thing that, of course, everybody is worried about, is hurricane season begins in a month.

MR. GREEN. That is right.

Thank you, Mr. Chairman.

MR. HALL. [Presiding.] Thank you.

And they tell me I am next for questions. Since I have the gavel, I will take their word for it.

Mr. Yergin, in your testimony, you discussed the peak oil theory, but you didn't subscribe to that theory. You site unconventional resources as part of the reason why. Can you give some examples historically of technologies that were considered non-conventional? And the one I am really kind of leaning toward is the ultra deep amendment that is in the energy bill that this Chairman passed really after 10 years of trial by Chairman in this committee to write an energy bill. We finally wrote one that is accepted and the President signed. And now, there is some movement away from some parts of that, the ultra deep being part of it that I think is a major part of that bill and a major answer to some of our needs for gas in the future from the depths of the Gulf and shut-in places. But your ideas on R&D programs for oil and gas, how shortsighted it would be to cut funding to such research, I would just like to hear your opinion on that.

DR. YERGIN. Sure. Well, I think on resources, as you were asking the question, I was thinking about coal bed methane, which about 15 years ago was considered something really exotic and now, Guy, you might know what the percentage is--

MR. CARUSO. Ten percent.

DR. YERGIN. It is now 10 percent of our natural gas supply. So that is an example of something that has moved into the mainstream. And people often forget that the oil industry is really a gas industry, a pretty high-tech industry. Actually, a good example, I mentioned the SEC reserves disclosures. When those were put into effect at the end of the 1970s, the deep water frontier was all of 600 feet. Today it is 12,000 feet. It is remarkable to think of drilling through 12,000 feet of water and another 12,000 feet underground. And I think there is now growing excitement about exploration going on in the ultra deep water and that it might be a very significant contribution, and not just in the United States, but around the world.

MR. HALL. And the technology is there for the asking, but it is expensive and it takes some supporting. And it is doubtful that the big oil companies are going to do it. They haven't. I think in the ultra deep amendment, we provided, I think, $100 million a year for 10 years on it, and then we got that cut in two, but it was still $50 million. That is not anything to turn down, if you don't say $100 million or not, which they probably could get. But that is now being looked at very closely by the Secretary as maybe whiting that out from the bill. And although he signed the bill less than, I don't know how long ago, just several months ago. So we are talking to him and urging him, friendly persuasion to look that over really carefully, because research and development, that is

more an R&D bill, actually, than it is an energy bill, because it allows us to go to the depths. As you say, there are depths that we can know, and we know it is there. Known reserves are there. We don't have the ability today to get them, but cooperating with universities and others who do have that knowledge and input, we can get them and pay for the program with what we get, and if we don't get it, it is going to stay in the Gulf, and we are not going to get it. So it doesn't cost the taxpayers anything. And that is the beauty of it. And I have passed that last 4 years as a Democrat four times and a Republican the last time. And you have seen the bill, and I am hoping that will stay in there. But that is part of what you alluded to, is it not?

DR. YERGIN. Well, I think in general we need a constancy and consistency on research and development. And some years ago, I chaired a task force for the Energy Department on Energy Research and Development, and I came to the obvious conclusion the reason you call it research and development is because you don't know. And if you knew, it wouldn't be R&D. And a large, wide portfolio and constancy is a really important part of it.

MR. HALL. And your reference to Nigeria is very timely, as a matter of fact, though it is not new. The problems in Nigeria that American businesses have had with Nigeria in the 1960s. And you know, they had a way of raiding. They would give you all of the political help and the bank would be guaranteed on a percentage basis. And always Nigeria had the worst percent, because you could send the press over there. If you sent it FOB, they would learn to unload it. So we got to where we had to put it in the channel in Houston to get our money. Nigeria is just not a country that you really want to deal with, but they are so rich in so many things that we need. And you know of the unrest there and the recent militant group that seized hostages and I think you said 550,000 barrels per day.

DR. YERGIN. Yes.

MR. HALL. What is the United States to do to relieve the tensions in Nigeria? If the instability continues, is it going to lead to further losses? I guess that is pretty obvious, but let me hear your thoughts on that.

DR. YERGIN. Guy, do you--

MR. HALL. Or Mr. Caruso. When I said you were so intelligent, I didn't mean to exclude Mr. Caruso. I just don't know him as well as I know you.

DR. YERGIN. As you say, the problems in Nigeria have been endemic in that country: the regional conflict, the poverty, the ethnic conflict, and the poverty in the delta region. There has been, in the last several years, an effort to really reduce corruption, which was quite sensitive, and that has been, I think, part of where this conflict is coming

from. And now, at least part of the conflict seems to be also about whether President Obasanjo is going to run for a third term or not. And that is something that will ultimately be decided in Nigeria.

I think there is a role, as we think about energy security, the supply chain, the infrastructure and working with countries as we are with countries in the Cascan Sea. We could be working with them in the Gulf of Guinea to help with issues of physical security, given the kind of volatilities that are so evident.

MR. HALL. I think my time has expired, and I thank both of you men for your input.

Mr. Stupak is next for 5 minutes.

MR. STUPAK. Thank you.

Dr. Yergin, some of your answers bring up the possibility that current price changes can be attributed to speculation on the potential for global instability rather than actual supply changes. In his written testimony, Mr. Caruso, and we have talked about it before, refers to this as the "fear" or "risk" premium. While Mr. Caruso seems to discount this argument, I am curious to hear your opinion on this issue. Are energy speculators, causing high prices at the pump by taking advantage of the fears, as we mentioned Iran, Nigeria, and Bolivia here this morning? But how does that affect the future of gas supplies?

DR. YERGIN. Well, as I said, I think the leading speculator on oil prices today is probably the President of Iran. If you plot the statements by the Iranian officials over the last month and the reaction in the oil prices, you see that people are worried and they are taking them seriously. What I wanted to say, and I think Guy Caruso made the point, is that there is an underestimation of the significance of the loss of Nigeria and what a big impact that is having at this particular time because the market is so tight. And I think that I have trouble differentiating between what are called speculators and the kind of general pervasive fear and anxiety in the market about whether there is going to be more serious disruption. The issue of Iran's nuclear program is, I think, both very serious and very perplexing.

MR. STUPAK. So even the real fear that we may have, which is, again, speculation, if you will, and Nigeria might be a little bit more of a concrete example, but there is a "speculative" or a "fear" premium?

DR. YERGIN. I would call it a "fear" or a "risk." As I think I said in my remarks, Nigeria, currently, is down 550,000 barrels a day.

MR. STUPAK. Right.

DR. YERGIN. In 2003, it was down over 800,000 barrels a day. So those who are experienced and knowledgeable are going to say, "Is this going to spread the threats to other companies?" Some bombs have been set off and so forth. If we were to lose another 300,000 barrels a day

without some corresponding give somewhere else in terms of additional supplies or demand response, I think we would see prices higher than what they are today. It is a very tricky situation.

Going back to spare capacity, we think that the spare capacity situation will improve over the next year or two, but right now, we are still in a very narrow band.

MR. STUPAK. Okay. Mr. Caruso, as I continue to learn more about this OTC, over-the-counter trading of energy derivatives, I haven't been able to find anyone who can tell me exactly how much of this trading is going on. Does the EIA, or any other Federal agency, have any way of knowing how to calculate how big these markets are, the OTC market?

MR. CARUSO. If there was, it would probably be the Commodities Futures Trading Commission.

MR. STUPAK. Okay. And I know they are up next.

MR. CARUSO. And I think Mr. Levin may be able to answer that question. They certainly track the regulated markets very closely, every week, you know, what the long positions are and how much were by speculators versus non-speculators. But the OTC, I am not familiar with.

MR. STUPAK. Okay. Mr. Yergin, it seems like once a month we get some kind of reason for these prices going up. And we made mention here this morning, even the hurricane season is going to be starting now, so that is another fear factor, which, again, can drive up the price of oil, at least a barrel of oil, correct?

DR. YERGIN. Yes. I think that what we will probably see is any time a hurricane starts building up, and particularly if the weather reports say it is going to bypass Florida and hit in this central area of the Gulf, before anything happens, you will see people, particularly if it is towards the end of the week, putting up the price. And then when we see where it goes and what the impact is, the price comes off. But I think it will really register in a way that it really hasn't registered before.

MR. STUPAK. Sure. Mr. Caruso.

MR. CARUSO. There is a linkage between fear and the physical market and that is what we are seeing now--crude oil inventories being built up, because companies are worried that if there is a disruption, they want to have enough physical supply, so there is a linkage between the physical and the futures.

MR. STUPAK. We are going to live through a hurricane season every year and go through a summer driving season every year. We go through Iran's instability every 10 years. There are all of these others. I would think by now the market would figure this out and be a little bit more stable when it comes to this, but it is really not in their best interest, in a way, as long as you have speculators who will use this risk factor or fear factor to drive up the price.

DR. YERGIN. Well, let me say, I think what has happened the last 2 years with hurricanes has made a change in psychology that was not anticipated. We created, in the 1970s, this energy security machinery to deal with a disruption in the Middle East, and we ended up having to deal with a disruption in the Gulf of Mexico. And I think that we entered a new period with the election of the new Iranian President last June, and Iran going from sort of finessing and being ambiguous about what it is doing, if anything to being over-explicit and threatening and the type of statements that are being made. So I think people have trouble seeing how this is actually going to play out.

MR. STUPAK. Okay.

DR. YERGIN. I mean, what kind of resolution is there going to be?

MR. CARUSO. Yes. I think you hit, really, the crux of what is going on here and that is why do we really have such volatility. And the reason I think you have that volatility is it takes only small changes in either supply or demand, regardless of the reason, in a market that is so finely balanced to lead to large changes in price. And once, somehow, we relieve that tightness, whether it is on the demand side or the supply side, and you, certainly have been debating that, that is the only way we are going to change this point you just made.

MR. STUPAK. Thank you.

MR. SHIMKUS. [Presiding.] The gentleman's time has expired.

And I will recognize myself for 8 minutes.

And it has really been a great hearing, and I appreciate your time and effort on this debate. I have been taking notes and listening, and the thing that frustrates me about the energy debate is we departmentalize energy. Here is an example. My first trip to Iraq, I visited their power plant there in Baghdad. It is called Al Durra, and it burns crude oil. High sulfur crude oil is what they used. I am assuming they still do. And it is dirty. And it is probably very inefficient. But in the public's debate of energy, we like to compartmentalize it to electricity generation or we like to compartmentalize it to fuel. And it is not always the case where if they had nuclear power abilities or coal generation or solar generation they could decrease that reliance on the crude oil, and maybe that could be used in the world market. I was interested in, Mr. Yergin, your analysis, and you were very diplomatic. Can it be said that the exchanges in these foreign countries and governments, Venezuela, Russia, even in Mexico, a movement to the hard left or the populist arena already threatens the ability for the world crude oil markets, is that correct?

DR. YERGIN. Well, it may not threaten to disrupt, but it changes the balance in the world crude oil market. It adds to the tension in the market. And unbalanced, it constrains supply.

MR. SHIMKUS. What does it do to the investment and development?

DR. YERGIN. Well, I think that the Russian government has $200 billion in reserves now when it had almost none in 1998. And I think they are not feeling the pressure for revenues and are very focused on consolidating control of its energy sector. Certainly, what an international company is going to go and do investment into--

MR. SHIMKUS. Eight minutes is a lot of time, but it is not going to be very long. What do we expect to happen to the Bolivian natural gas fields? Do we expect more efficient production or do we expect less efficient production and, in essence, no future development?

DR. YERGIN. Well, I think the southern part of Latin America is suffering from gas shortage. This would aggravate the gas shortage. There would be less investment. It will operate less efficiently. The gas, which could be monetized and provide revenues for the Bolivian people, to help the poorest nation in Latin America be less poor, will not be forthcoming to the same degree. And I think Brazil is going to be looking for alternatives to Bolivia unless there is some resolution of this.

MR. SHIMKUS. And I really appreciate your ten points. And I scribbled them down. I said, "Well, I haven't looked at your statement and your testimony." You are saying those who fail to plan, plan to fail. And I think it pretty safe to say that those of us who are market-based individuals, the Government does incentivize or not and a lot of us come to a lot of reasons. We have, in the energy sector, and I am saying that as a broad term, not just to crude oil, but we have not incentivized the development of energy opportunities.

You know, your first point is diversification of supply. And so I am looking at what we have done recently to try to do diversification of supplies. And renewables come to mind. I have been talking extensively on coal-to-liquid development. I don't think we mentioned that at all in any of the comments I have heard so far. Over to technology, level of applications, South Africa doing it, and no looking at locations in the United States to provide that, taking conversion. You all know all of this debate. But that has an opportunity to positively affect additional supply, at the United States' internal security applications. Also, the President's initiative FutureGen, which is again using coal, near-zero emissions, addressing some of the environmental concerns. As you put in other points in your testimony, the energy markets are international markets. FutureGen realizes this, and that is why FutureGen is not only a U.S. Government operation, but it is private sector with our major energy companies like Southern Company, Console Energy, Peabody, along with companies from the international arena in Australia and China. Because as you have stated, they are going to be consumers. They are going to be using coal. Now we are united in this search. The

President's initiative on GNEP is another proposal to start addressing the electricity future demands and how we, as an international community, can address the nuclear fuel issue, the reprocessing issue, the storage issue, and get as an international organization. I mean, I have scribbled notes all over this place about coal-to-liquid and how some of the plans that we have in place could affect this whole international debate. But the difficulty is in politics 101, all politics being local, high gas prices, politicians are scared, and because of that, we have to do something and hence we have these hearings and we try to find some culprit. Our job is, really, to look over the horizon so that we are not identified as folks that don't plan for the future.

Having said that, to look over the horizon, you offer a very clear, 10-point agenda. And I would encourage my colleagues to help look at that as a way and slip in some of the proposals that we have right now, like GNEP, FutureGen, coal-to-liquid development in that equation and look at legislative responses to help bring those to fruition.

Dr. Yergin, can you comment on any of that?

DR. YERGIN. I realize that you all are engaged in this enormous pressure from constituents, very justifiably so. But standing back one step from it, I am struck by some larger elements of consensus that I think I see, although maybe you all don't feel it on the floor. One is of an embrace of energy efficiency across the spectrum. The second, a recognition that we really do need to widen our options and choices. And I think, as you say, basically widening the definition of what we mean by oil or liquids is really whether it is gas to liquids, whether it is oil sand or it is ultra-deep water, whether it is coal to liquids, which we note the increased interest. Those are all counterbalances to the instability and the pressures in the international market. They are not going to provide answers quickly. And of course, with gas prices, the pressures are very difficult. And it does require keeping one's balance. Probably half of the people in this room remember the gas lines, and the other half think they remember gas lines because they have seen the photographs. But in fact, those gas lines in the 1970s were self-inflicted because of regulations and controls. And we should keep in mind the value of the flexibility of our system and that things will change. I would just say the first Congressional hearing I could find for high gasoline prices when I was researching "the prize" was in 1923, when it was going to go to $1 a gallon and within 4 years, it went from $1 a gallon to 10 cents a gallon. So I suspect that in a couple of years, the picture, just as it looks very different now than it did 2 years ago, will look different again. And I think if we can keep the consistency of the view about widening that diversification, that is something that is an essential goal work of security for our country.

MR. SHIMKUS. Thank you.

I am going to end, but Mr. Caruso, I am just going to throw this out. If you could get back to me, because of time. I don't really need you to answer it now.

But can you tell me if you have done analysis of the available coal reserves in the United States, and what would that translate into barrels of crude oil and the lifetime of that if we really effectively moved to coal-to-liquid technologies and helped incentivize that? And having those numbers could help me in my crusade here to encourage my colleagues to really look at that as an assistance, not total salvation, but obviously an assistance in this debate.

Now I would like to turn my colleague from Maine, Mr. Allen, for 5 minutes.

MR. ALLEN. We will get it right. Thank you. Thank you, Mr. Chairman.

Mr. Caruso, you are the Administrator of the world's most advanced energy data system. The EIA sets the standard for global efforts to improve the understanding of our complex, evolving global oil market. In fact, the International Energy Agency depends on EIA's data on imported oil prices. They have recently been warning of a looming crisis in the compilation of energy data, which, they feel, could sway world oil and natural gas prices and affect the planning of the bigger energy producers.

Oil companies have posted record profits. The public is out there saying maybe these oil markets aren't working. And there are concerns about the ability of oil-producing nations to respond to the demand that is increasing here and in China and India. So the information is very important. And that is why I am puzzled by your decision to suspend collecting domestic and foreign crude oil price surveys, at least certain of those. These surveys collect information used both domestically and internationally to track and inform oil markets. The Federal government relies on this data for a variety of purposes, including Federal land leasing evaluations, tax assessments, and the evaluation of current and future policies, such as royalty payments. With crude oil prices reaching $75 a barrel and growing public demand for increased transparency in oil markets, it seems to me we are in no position to eliminate this vital government data collection and market analysis.

So I wonder if you could explain to the committee precisely why you decided to discontinue the domestic and imported crude oil price surveys. And the ones I am talking about, EIA-182, domestic crude oil first purchase report, and the EIA-856, the monthly foreign crude oil acquisition report.

MR. CARUSO. Thank you.

Yes, those two surveys are among the 30 surveys that we do for oil and gas weekly, monthly, and annually. And it was a tough decision, largely based on the budgetary resources available, and that was in our submission to the Appropriations Committee in February of 2005 that, given the budgetary appropriation that was being requested, it would mean that we would have to take a hard look at everything we do in order to maintain total quality of all of EIA's data collection. And those two surveys were a lesser priority than the other surveys that are being done. So we said in our budget submission that if we got a certain amount of money, we would have to drop those two surveys. And we just felt they were less important than other things we are doing. And we are continuing to collect price data. So those aren't the only surveys for collecting that data.

Now I realize that some of the users that you mentioned would suffer from the lack of that data, and we are certainly willing to look into seeing whether there is any way to meet the requirements.

MR. ALLEN. You are not saying that those two surveys are unimportant, I take it?

MR. CARUSO. They are not unimportant, at all.

MR. ALLEN. They would be useful in trying to understand the global oil markets?

MR. CARUSO. That is correct. And it was a reluctant but tough budgetary decision.

MR. ALLEN. Well, I am not on the Appropriations Committee, Mr. Caruso, but to me, I would say that in this kind of climate, when the Government stops producing data that would be helpful to people trying to understand these markets, it seems to me to be a mistake, and I hope you do better this year before the Appropriations Committee.

But in the time I have got left, very quickly, I think you said, and correct me if I am wrong, Mr. Caruso, between 2007 and 2010, demand will exceed the excess production capacity in the world?

MR. CARUSO. What I said was that we do see productive capacity growing to the point where we might have three to five million barrels a day of spare capacity by 2010.

MR. ALLEN. Okay. So the productive capacity is growing at a rate of--

MR. CARUSO. Yes.

MR. ALLEN. And that is the capacity. There are some big questions, as I understand, about reserves, global reserves. We also have some issues about whether or not the authorities are reporting and giving us accurate information.

MR. CARUSO. Yes, there are a lot of issues, but the biggest one is converting those reserves into productive capacity.

MR. ALLEN. Right. Thank you. With that, I will yield back.

MR. SHIMKUS. I thank my colleague for being very punctual.

And I would like to recognize now my friend from Tennessee, Mrs. Blackburn, for 5 minutes.

MRS. BLACKBURN. Thank you, Mr. Chairman.

And thank you all for being so patient with us this morning.

I would like to stay on the capacity issue, Mr. Caruso. In your testimony and a couple of times in answering questions, you talked about world refining capacity and the utilization rate being at 90 percent compared to 85 percent in 2002. And you have also touched a little bit on the margin of the error and the gas prices can be affected a little bit by an outage. And we have had some debates. We had a bill on the floor yesterday that would have streamlined some of the issues dealing with refineries and getting them on the books and then in the ground and up and running. And Mr. Bass has been very involved in this issue, so I am asking this question for myself and for Mr. Bass, because he had to go to the floor and handle our amendment.

Now the U.S. capacity, are we higher or lower than the worldwide number?

MR. CARUSO. Our utilization rate is higher than the world. We will probably average about 95 or maybe 96 percent this summer.

MRS. BLACKBURN. Ninety-five to 96?

MR. CARUSO. Yes. Compared to a world of about 90.

MRS. BLACKBURN. Okay. Then considering that we have that higher utilization number, is there not an economic incentive for more companies to either build new refineries or expand their current capacity?

MR. CARUSO. Yes, I think we have now seen 3 years in a row where we have had very good margins of profitability, and this is definitely having an impact on investment plans. And a number of companies have announced plans for expansion of capacity at existing plants. And we think that could be as much as 1.5 million barrels a day.

MRS. BLACKBURN. One and a half million barrels a day?

MR. CARUSO. Yes.

MRS. BLACKBURN. Okay. And then specifically to one of Mr. Bass's concerns, if we speed that capacity up, how quickly do you think we could fill that? I mean, is it going to be filled as soon as we can get something in the ground and operating? Or Dr. Yergin, you may have an estimate on that, also. Either of you.

MR. CARUSO. Well, I guess it goes back to how long it takes to put a project together and get a permit. It depends. We are talking about additions to existing capacity, right?

MRS. BLACKBURN. That is correct.

MR. CARUSO. So what is that? A 2 or 3 year process?

DR. YERGIN. Minimum.

MRS. BLACKBURN. And we are trying to streamline that. Yesterday, we had a bill on the floor that did not pass that would have streamlined that permitting process, and we are looking at the availability of the product at the retail level and having it available to consumers for usage and the refinery capacity and the way it plays into that. So any time that we are looking at 95 to 96 capacity, I think your points are well taken, because as you have previously said, as you take places down for maintenance, for routine maintenance, for scheduled maintenance, to go in and change the equipment so that it is more environmentally-friendly. And as I mentioned in my opening statement, environmental goals were set in place in the permitting bill we had on the floor yesterday. It would have sped the process. And from what I am hearing you say, speeding that process would yield us the results that we need, which is a greater supply.

MR. CARUSO. I would agree: the speedier the better.

MRS. BLACKBURN. Okay. All right. Well, I know we have another panel. We want to get to them, and we are going to have votes, so I will stop with that one question. I have three others for you, Dr. Yergin, and four for you, Mr. Caruso, and I will submit those to you. But thank you for your patience today. We appreciate it.

MR. CARUSO. Thank you.

MR. SHIMKUS. Thank you.

And for the record, my colleague is correct. The vote did not pass on a super majority basis, but it did receive a vote of 237 to 188, and we expect to bring that permitting bill back to the floor under a rule and pass it with a simple majority.

So with that, I turn to my colleague from the State of Washington, Mr. Inslee, for 5 minutes.

MR. INSLEE. Thank you.

It is my understanding that production of oil in Iraq has been down in the magnitude of 900,000 barrels per day. This follows the invasion of Iraq decision by the President. The question is, did the President's decision to invade Iraq contribute in some way to the increase in fuel prices that Americans are now experiencing by disrupting Iraqi oil production and decreasing the supply?

MR. CARUSO. The Iraqi production, as we have it right now, is about 1.9 million barrels a day.

MR. INSLEE. I think it was about 2.6 million prior to the invasion. So my question is it reduced oil production. It did not achieve the foretold result of actually deadening oil production, what we were told that is a possibility with Iraq, after the invasion. Did the invasion of Iraq,

at the request of President George Bush, reduce oil supplies, whereby, in some fashion, contributing to the increase of oil prices and gas prices that Americans are now experiencing? I think a yes or no could work pretty well.

MR. CARUSO. Well, there are a lot of factors that have contributed to the oil price, and that is one of them.

MR. INSLEE. Okay. So the answer is yes. And on the supply side, one of the President's big decisions, reduced supply and increased the costs that my constituents are now paying.

Now I am going to ask you about the demand side. When I got my degree in economics, supply and demand was a big deal for 4 years of my life. And both are important.

So on the demand side, for the 5 years of this President's presidency, there have been efforts in the U.S. Congress to decrease demand by increasing the efficiency of the passenger cars that we drive. And in fact, the efficiency of the cars we drive have actually reduced since the time President Bush took the oath of office. And I will add, that has been the case for several situations, several terms. But the President has resisted to improving mileage for passenger cars, which he has the statutory authority to do to improve the mileage of our cars, something that was very successful in the late 1970s and early 1980s where we increased our mileage by at least 60 percent, and had we continue increasing our mileage, we would actually be free of the Persian Gulf oil today.

So the President has not used the authority he has had, and has resisted efforts, in this Congress, to improve the mileage of the cars we drive. Is it fair to say that the President's resistance, to date, to improving the efficiency of our cars, thereby decreasing demand, has also contributed to the increase in costs that Americans are paying today for the price of a gallon of gasoline?

MR. CARUSO. Well, I think there are a lot of factors in the gasoline demand increase. I am not a policymaker, so I wouldn't want to comment.

MR. INSLEE. Well, let me stretch your job classification just a little bit. And there are a lot of factors in this. I am just asking about a couple of them. If you believe, as I do, that auto efficiency will, to some degree, reduce demands, driving the same amount of miles for less gasoline, and a safe and handy way to do it, and I drive a car that gets 50 miles to the gallon. If you make that assumption, how has the President's decision failed to help at all increase the efficiency of our passenger cars, has that contributed in some way to the price of gasoline?

DR. YERGIN. Did you say you drive a car that gets 50 miles to the gallon?

MR. INSLEE. Right.

MR. CARUSO. What are you driving?

MR. INSLEE. A Prius. And I am looking forward to some of our domestic folks getting involved. And by the way, there is some good news on that. I read that GM is now looking at a dual drivetrain for a hybrid that could be a great entry in this.

So let me still ask this question. Just, you know, simple. Has it contributed, the President's failure to move on efficiency? Has it contributed, at least some way, to the increase in the price of gasoline? Give it your best shot.

MR. CARUSO. Well, I think the President has done a number of other things to deal with the efficiency side of things.

DR. YERGIN. Let me say that the two most important things we did in energy policy in the 1970s that had an immediate effect, one was the fuel efficiency standards on the demand side, and the other was the building of the Alaska oil pipeline. They each contributed about the equivalent of two million barrels a day. And I think I hear when gas was cheap, there was not much of a drive to change the fuel efficiency. People bought SUVs and didn't think about it. That is obviously very different now. And high prices have sent a very powerful and painful message to American automobile makers, among others. And I think, one way or the other, we are going to get a more efficient automobile fleet. It may not get up to your 50 miles per gallon for everybody, but I think we will get to more efficient cars. And when you look not just at the United States, but if you look at China and you look at India and other countries, you see that a greater efficiency in transportation is really a global priority.

MR. INSLEE. I have a lot of questions, but thank you.

Thank you, Mr. Chairman.

MR. SHIMKUS. I thank my colleague.

Now I would like to recognize the gentleman from Massachusetts, Mr. Markey, for 5 minutes.

MR. MARKEY. Thank you, Mr. Chairman.

Mr. Yergin, reading through your testimony, I was struck by the fact that the United States has actually added 2.2 million barrels a day in refinery capacity over the last dozen years, which, as you note, is the equivalent of adding ten new good-sized refineries. Now it has been suggested by some in the Administration and in the Majority that U.S. environmental and permitting laws are somehow an obstacle to refinery capacity expansion. But your testimony suggests that the oil companies have been able to build the equivalent of ten large refineries over the last dozen years without overriding environmental or local zoning permitting requirements.

So would you agree that we don't need to change our environmental laws or override State and local land use rules in order to expand refinery capacity?

DR. YERGIN. Congressman Markey, I don't know. I didn't read the legislation that was voted upon yesterday, so I can't address that specifically. The increase in capacity, what I am struck by, is focusing on the number of refineries rather than capacity. And in terms of capacity, that is a substantial increase. It is, of course, not building new refineries, but is the expansion and deep bottlenecking and so forth on existing sites. And there are plans to continue to add increasing capacity to existing sites. A critical question is, at some point, where will new refineries be built? Will they be built here in the United States, or will we be importing more product from other countries?

MR. MARKEY. I also see that on page nine of your testimony, although often presented solely as a U.S. problem, inadequate refining capacity is, in fact, a global phenomenon. What are the factors that have led to this global refinery capacity problem so that we can get it out of the context of just U.S. environmental laws and the committee can understand this situation?

DR. YERGIN. I think there are two big things. One, the European prices for motor fuels have been biased in favor of diesel over gasoline, and so there has been this extraordinary explosion in diesel cars. Half of the new cars in Europe, 70 percent of the new cars in continental Europe are diesel, and the refining system does not support that. The second thing is that because of the Asian financial crisis, refinery developments in Asia were held up. And so Asia is short of refining capacity. In both cases, it is short of the complex refinery, what Mr. Caruso called the sophisticated refining capacity to turn out diesel. This is adding to the picture on making things like Nigerian oil more valuable in the marketplace. And if we look on a global basis, diesel demand is growing more rapidly than gasoline. So that is the global context, and the United States is part of this global market.

MR. MARKEY. Which, of course, has nothing to do with the U.S. environmental laws?

DR. YERGIN. That is right. It has to do with what is happening there.

MR. MARKEY. Across the board. Thank you.

And, as you know, Newt Gingrich and the Republican Congress, beginning in 1995, prohibited the Department of Transportation and their part in promulgating new fuel economy standards, and for the last 6 years, they have sat on their hands and refused to promulgate new fuel economy standards that could have dramatically increased the overall fleet average, including SUVs and light trucks. What kind of a

difference would it have made if the same kind of progress that we have made from 1975 to 1986 had been made over the last 12 years in terms of increasing the fuel economy standards?

DR. YERGIN. Well, I haven't calculated that. Certainly, one reason we went from a very tight oil market in the early 1970s, which I should say that the oil market today is even tighter than it was then, but a very tight oil market to that huge surplus that Mr. Caruso described was, among other things, not only the switching from oil and electric generation, but the fuel efficiency standards. I think fuel efficiency standards in the United States and around the world would have a big impact. I think it is always a question whether you do it through regulation, whether you do it through, I hate to use that word, a gasoline tax, or some other way, or some mixture of them, but one way or the other, it certainly seems this country is going to move towards greater efficiency in our transportation.

MR. MARKEY. You said that we saved about two million barrels of oil.

DR. YERGIN. Yes, in 1973 and sort of the early 1980s.

MR. MARKEY. Would that have been possible again if we had made the same progress on fuel economy standards in the past 12 years? Or would that have been possible?

DR. YERGIN. Well, I think I would have to calculate it out. The other thing that has happened, of course, particularly when gasoline prices were low, and it is quite striking, and I think Mr. Caruso could say, the number of miles that Americans drive has increased quite substantially over the 5 or 6 years, and so that is a factor there, too. But I think that greater efficiency, if you are talking about greater efficiency being important, there is no place where it has a bigger immediate impact than in transportation.

MR. MARKEY. Okay. Thank you.

MR. SHIMKUS. I thank my colleague.

I want to thank the panel for their long testimony and questions and answers. We really do appreciate it. It is a very complicated issue, and you have helped, hopefully, enlighten us a little bit to make strong public policy decisions.

So with that, I would like to excuse you and welcome the second panel.

The Chairman is on his way back, but because I like to be in the chair, the sooner we get started, the better for me.

I am going to start with some initial introductions.

On the second panel, we have Mr. Robert, is it Levin?

MR. LEVIN. Levin, yes.

MR. SHIMKUS. Senior Vice President for Research at the New York Mercantile Exchange. And we appreciate your attendance.

We are also being joined by Ms. Orice Williams.

MS. WILLIAMS. Orice.

MR. SHIMKUS. Orice. Okay. Orice. No one else can make that mistake now. Director of Financial Markets and Community Investment Team with the Government Accountability Office.

And we are glad to have you. Your full statements are submitted for the record. If you could summarize that statement in 5 minutes, we will be very grateful, because I know there is a lot to talk about.

We would like to begin with Mr. Levin. Welcome.

**STATEMENTS OF ROBERT LEVIN, SENIOR VICE PRESIDENT FOR RESEARCH, NEW YORK MERCANTILE EXCHANGE; AND ORICE WILLIAMS, DIRECTOR, FINANCIAL MARKET AND COMMUNITY INVESTMENT TEAM, GOVERNMENT ACCOUNTABILITY OFFICE**

MR. LEVIN. Thank you very much, Mr. Chairman. On behalf of New York Mercantile Exchange and myself, thank you for the opportunity to be here today. I am going to briefly go over my written testimony and then just briefly describe the New York Mercantile Exchange.

To refresh everyone's memories, we are a regulated public marketplace. We offer trading in many different products, a concentration in many of the metals and energy. And of course, energy futures products is, I think, the reason that I am here today.

The trading in our exchange is competitive. We offer what we consider a level playing field. We believe trading is fair. We publicly disseminate all of our prices. Market prices and the process of price determination is transparent. We would refer to that as price discovery. We consider most of what goes on at the Exchange to be very transparent. NYMEX itself, as an institution, is neutral regarding what happens in the market. We don't have a view on price. The staff, for instance, is prohibited from trading.

Regarding world energy markets, much has been discussed previously, and I think I will just try to touch on some types of that. But I want to emphasize that NYMEX, especially as a staff member, we do not take views on the price, and regarding specific questions, though, I will try to answer any question that comes up as well as I can under that circumstance.

The many markets in energy are highly regionalized and, to a large degree, they are independent. As a matter of fact, natural gas, in some

sense, is on the verge of becoming an international market, but it has not quite arrived there yet. Electricity, certainly in North America, is still more regionalized than oil, as has been already expressed by the previous panel that is absolutely a predominantly international market.

In the crude oil market, there are hundreds of different streams. There are dozens of locations where these streams are produced. There are probably hundreds of locations where it is refined. And all of this oil physically trades.

Commercial trends and conditions regarding the trade of that oil have developed over the years, and we have, as we make distinctions to cash in the physical market, transactions there. And sometimes, we even call the cash or the physical market the OTC market, but the over-the-counter market, these days, in those transactions, typically refers to financially-settled derivatives. And then we have the futures market, which is the most transparent of all of these markets. In all fairness, there is a degree of transparency in the other markets as well, but not all of those markets are transparent, and not all parts of them, and admittedly, we do note that for some participants in the market, lack of transparency is seen as a commercial advantage. However, we do see the transparence and liquidity that currently exist in crude oil markets, especially futures markets, and especially the NYMEX futures markets, has an unambiguous public benefit at all times.

There has been a great deal of standardization in the cash and physical market, the OTC market, over a time, and terms and conditions, there are many sort of standard transactions, and one can follow the trading of those. And there is reporting of trading and prices in those markets. These terms and conditions govern not only the trading but the delivery and the title transfer.

Between those markets and the futures markets, which is also, of course, standardized, and in our market, delivery is called for in our basic crude oil product. There is a substantial interaction between transactions in all of these different markets. What we find happens is there is arbitrage, there is competition, and there is a significant degree, as I said, of transparency in cash and OTC, and there is complete transparency in the futures markets.

Transactions in all of these markets are constantly taking place. Oil is an international market. It is a 24-hour market that tends to be a 7 day market. And consequently, there are prices that result from all of these transactions. And they take place and they emerge all of the time. In a very real sense, prices are determined simultaneously as well as reactively between all of these markets. To say one market leads another market could be very misleading.

In terms of geopolitical impacts, I think some things have already been mentioned. I can certainly agree that there is a coincidence in some news reports and changes of prices in our markets and other markets. For example, on April 10, our price increased $1.35 a barrel, so there were headlines about Iran and potential military response.

In addition to other important factors that influence, ultimately, gasoline prices, crude oil is very major. We have had some discussion of some of the others. You talked about refinery utilization, and of course the transition from MTBE to an ethanol-based gasoline, and none of this is to say that we have a negative view, or any view, on environmental impact, because coincided, perhaps not the best timing, all other things considered as far as price impacts, but it does have an adjustment factor on the market. And we have recently incorporated and are making a change from the MTBE-based reformulated to the gasoline reformulated and probably have other plans to offer other types of products as well.

That concludes my oral testimony, and I look forward to your questions.

[The prepared statement of Robert Levin follows:]

PREPARED STATEMENT OF ROBERT LEVIN, SENIOR VICE PRESIDENT FOR RESEARCH, NEW YORK MERCANTILE EXCHANGE

Mr. Chairman and members of the Committee, my name is Bob Levin and I am the Senior Vice President of Research at the New York Mercantile Exchange (NYMEX or Exchange). NYMEX is the world's largest forum for trading and clearing physical-commodity based futures contracts, including energy and metals products. We have been in the business for 135 years and are a federally chartered marketplace, fully regulated by the Commodity Futures Trading Commission (CFTC) both as a contract market and as a clearing organization. On behalf of the Exchange, its Board of Directors and shareholders, I thank you and the members of the Committee for the opportunity to participate in today's hearing on the futures market and gasoline prices.

**INTRODUCTION**

NYMEX provides an important economic benefit to the public by facilitating competitive price discovery and hedging. As the benchmark for energy prices around the world, trading on NYMEX is transparent, open and competitive and heavily regulated. Contrary to some beliefs, NYMEX does not set prices for commodities trading on the exchange. NYMEX does not trade in the market or otherwise hold any market positions in any of its listed contracts and, being price neutral, does not influence price movement. Instead, NYMEX provides trading forums that are structured as pure auction markets for traders to come together and execute trades at competitively determined prices that best reflect what market participants think prices will be in the future, given today's information.

There is a strong beneficial and interdependent relationship between the futures and the underlying physical commodity or "cash" markets. The primary motivation for using the futures market is to hedge against price risk in the cash market. Price volatility drives many into the futures markets. Many prudent business managers rely on the futures market to protect their business against price swings in the cash market.

Futures markets provide a reference point for use in executing off-exchange trades at competitively determined prices. An understanding of the NYMEX market, its pricing mechanism and the relationship between the futures price and the cash price will provide useful instruction and clarity to what is often perceived as an esoteric area of the broader financial marketplace.

**OVERVIEW**

Futures markets fulfill two primary functions: (1) They permit hedging, giving market participants the ability to shift price risk to others who have inverse risk profiles or who are willing to assume that risk for potential profit; and (2) They facilitate price discovery and market transparency. Transparency involves many factors, including: (1) continuous price reporting during the trading session that is disseminated on a real-time basis worldwide by various market data vendors; (2) daily reporting of trading volume and open interest; and (3) monthly reporting of deliveries against the futures contract.

NYMEX's futures and options contracts are listed and traded by calendar month. For energy contracts, trading terminates in the month preceding the month of actual delivery of the underlying commodity (if positions are not offset and instead are held through the termination of trading for that contract month). Consequently, the front or spot month listed for trading during most of the month of May would be the June 2006 contract month. The daily settlement price for each contract month of a listed contract is calculated pursuant to Exchange rules. The rules governing the calculation of our settlement price reflect the business judgments exercised by Exchange officials.

By listing contract months for trading out into the future, a common convention in the futures industry, our prices at all times reflect the collective consensus of the marketplace as to the future direction of commodity prices. By contrast, many cash markets of the underlying commodities for our products, such as for gasoline, are quoted and traded in the cash market as day-ahead products. Consequently, there can be at times significant differences between futures prices on our markets and prices in the day-ahead cash market.

NYMEX energy futures markets are highly liquid and transparent, representing the views and expectations of a wide variety of participants from every sector of the energy marketplace. Customers from around the globe can place buy and sell orders through brokers on the NYMEX trading floor. On behalf of the customers, buyers announce their bids and sellers announce offers. The price agreed upon for sale of any futures contract trade is immediately transmitted to the Exchange's electronic price reporting system and to the news wires and information vendors who inform the world of accurate futures prices.

Price signals are the most efficient transmitters of economic information, telling us when supplies are short or in surplus, when demand is robust or wanting, or when we should take notice of longer-term trends. NYMEX futures markets are the messengers carrying this information from the energy industry to the public. The wide dissemination of futures prices generates competition in the establishment of current cash values for commodities.

**Price Discovery**

The institutional setting of futures trading helps discover the competitive price which best represents what the market thinks prices should be in the future, given today's information. As such, futures markets provide reference points for use in buying and selling commodities at competitively determined prices. The widespread dissemination of exchange-generated prices fosters competition in the establishment of current cash values for commodities. Because of the liquidity and transparency of the futures market, the marketplace uses the futures price to provide the reference for setting prices in the cash market. This is referred to as the "price discovery" function.

**Relationship between Futures Prices and Underlying Cash Prices**

Futures markets are a derivative of the cash market and are designed to ensure that the cash and futures market prices converge to a single price at expiration of the futures contract. The cash market typically consists of a variety of transactions that differ in the timing, location and form of delivery (as well as in other important commercial terms and conditions). In many cases, the general terms governing these transactions are standardized which results in development of a series of fundamental products or commodities for the underlying market. In the oil market, historically, there have been a number of specific transaction types serving in this role. Generally, market competition results in arbitrage by market participants between these commodity-types of transactions and other less-standardized transactions such that fairly reliable statistical correlations develop between different types of products. Futures contracts are expressly designed to either correspond to an existing cash-market "standard" product or fill that role on its own.

Although futures and all cash prices often do not always move in parallel, there is considerable support for the proposition that price changes in one part of the market, cash or futures, are frequently transmitted to other parts of the market and result in similar changes elsewhere. The futures markets, therefore, reflect cash market prices and, as a result, are able to be used as a hedging vehicle. The difference between the cash and futures price at any time is known as the "basis." Usually, basis is measured as the differential between the cash price and the nearby futures price. The size of the differential provides a benchmark against which the closeout prices of both the cash and futures positions may be measured. Historically, NYMEX futures have proven to be extremely reliable vehicles for converging to the cash market; a marketplace that consistently has performed with integrity.

**MARKET ANALYSIS**

NYMEX staff monitors the supply and demand fundamentals in the underlying cash market to ensure that NYMEX futures prices are consistent with broad, ongoing, cash market price movements and that there are no price distortions. Our analysis of the market has identified three key factors that are contributing to higher gasoline prices in the cash and futures market: 1) high crude oil prices; 2) methyl tertiary butyl ether (MTBE) phase-out; and 3) reduced refinery utilization rates.

**High Crude Oil Prices**

NYMEX trades light sweet crude oil futures contracts, one of our most actively traded energy products. Crude oil is a strategic commodity that responds to global political tensions, particularly in the Middle East and West Africa. In fact, crude oil prices are determined in a global market place. That global market place is highly sensitive to geopolitical events, and the price of crude oil responds immediately.

For example, recently, the Iranian nuclear threat appears to have contributed to price volatility as the market responds to the latest political developments. For example, on April 10, the May NYMEX crude oil futures price increased $1.35 per barrel to $68.74 at the same time that there was a headline story about Iran and the potential for a military response. Two weeks later, on April 21, the NYMEX June futures price reached an all-time high of over $75.00 coinciding with continued concerns about Middle East security and reports of Nigerian supply cuts arising from militant attacks. During this same time period, there has also been reduced production in other oil producing countries due to political unrest. Chart A (attached) reflects global crude oil prices using the front month NYMEX Light Sweet Crude Oil (WTI) futures and Brent Crude Oil futures prices.

Crude oil is the main feedstock for gasoline production and, consequently, crude oil prices can have a very strong influence on gasoline prices. As such, the strength in crude oil prices has been an important factor leading to higher gasoline prices.

Gasoline is the largest refined product by volume sold in the United States and accounts for almost half of the national oil consumption. It is a highly diverse market, with hundreds of wholesale distributors and thousands of retail outlets, often making it subject to intense competition and price volatility.

NYMEX trades New York Harbor unleaded gasoline futures contracts. Market conditions in the gasoline market reflect the basic market fundamentals such as imbalance between supply and demand. Tight gasoline supplies due to lack of refinery capacity, compounded by the lingering impact of Hurricane Katrina, and, more recently, the transition from MTBE to ethanol have driven prices upward dramatically in the cash and futures market.

**MTBE Phase-Out**

The gasoline market is currently in a difficult transition period due to the phase-out of MTBE, and the related transition to ethanol. As companies eliminate the use of MTBE and replace it with ethanol, gasoline refiners and importers must adjust their practices and systems. Ethanol, which is chemically different than MTBE, contains more volatile compounds than MTBE and, therefore, is harder to use in reformulated gasoline in the summertime. In addition, ethanol cannot be carried in the nation's pipeline system, and must be segregated from the wholesale distribution system until its addition at the truck rack. Finally, ethanol presents new demand and supply implications, which must be factored into the pricing of gasoline.

There is a level of uncertainty involved in this transition process as the marketplace adjusts to the new supply situation. This uncertainty typically leads to higher gasoline prices in the short term. Buyers and sellers have concerns about demand and supply fundamentals, and the higher costs are then passed on to consumers. The transition process is now well underway but not yet completed, as the gasoline market begins to phase out MTBE-blended gasoline. Most energy firms likely will continue to draw down and use up their reformulated gasoline (RFG) inventory during the remainder of the month of May. Market observers continue to believe that sometime this summer the Reformulated Gasoline Blendstock (RBOB) product will largely replace reformulated gasoline as the predominant gasoline product in the cash market.

Chart B, attached, shows the wholesale price of ethanol and MTBE in the New York Harbor area. As you can see, ethanol prices are currently $1.00 per gallon higher than MTBE. This large price differential indicates the strength of ethanol demand as compared to MTBE. The ethanol is then added to RBOB to make finished gasoline. NYMEX first listed RBOB gasoline futures for trading last October in anticipation of the phase-out of MTBE from the gasoline pool. Chart C, attached, shows recent prices for finished RFG (with MTBE included) and RBOB (before the addition of ethanol). The current RBOB price is about 10 cents per gallon higher than finished RFG (with MTBE), and when the ethanol is added (at a 10% blend by volume) the finished ethanol-blended gasoline recently has been priced even higher, at 15 cents higher than RFG with MTBE. This accounts for some of the recent price rise in gasoline.

**Reduced Refinery Utilization Rates**

Gasoline prices have been supported recently by lower refinery utilization rates due to increased refinery maintenance this spring. Some refineries reportedly had delayed maintenance work in the aftermath of Hurricane Katrina to ensure adequate gasoline supplies. Furthermore, additional refinery work is needed this year to comply with new low-sulfur requirements in diesel and gasoline. The end result is tighter gasoline supplies in the short-term until the higher refinery utilization rates can be restored.

Even though no new gasoline refineries have been built in the U.S. in several decades, this imbalance has been mitigated to some extent by higher efficiencies from existing plants, which have generally operated at a high rate of utilization in recent years.

However, such a high utilization rate also means that when utilization rates are reduced for any reason, there will be an immediate impact on the availability of new supplies of gasoline.

In the face of these market factors, the NYMEX system continues to work according to design. As intended, NYMEX's highly transparent, open and competitive market place adds a level of economic stability to the situation by providing a reliable and well-regulated price discovery and risk management forum.

**CONCLUSION**

At all times during periods of extreme uncertainty in the market, NYMEX has been the source for transparent prices in the energy markets. Our price reporting systems, which provide information to the world's vendors, have worked flawlessly and without delay.

The NYMEX marketplace continues to perform its responsibility to provide regulated forums that ensure open, competitive and transparent energy pricing. We can only imagine the market uncertainty and further devastation to consumers if NYMEX were unable to perform its duty and prices were determined behind closed doors.

I thank you for the opportunity to share the viewpoint of the New York Mercantile Exchange with you today. I will be happy to answer any questions members of the Committee may have.

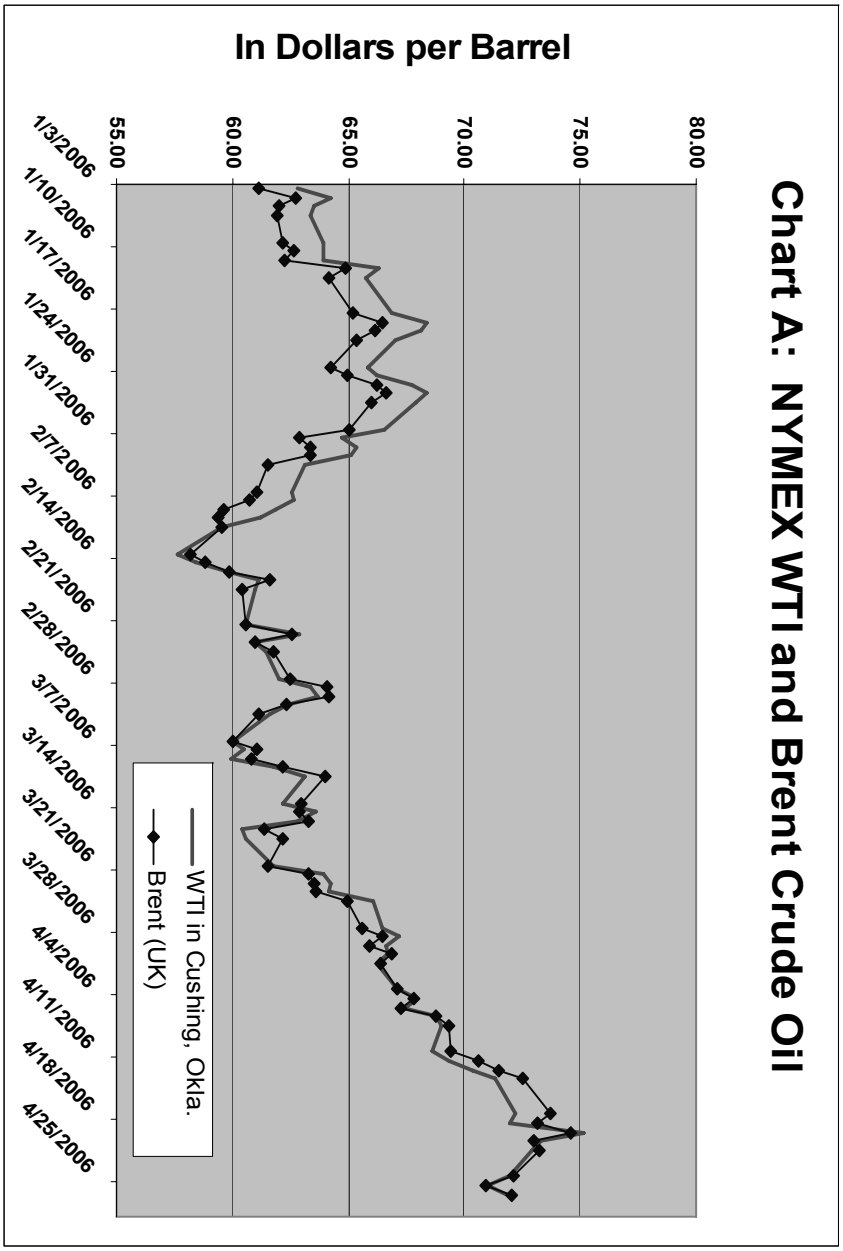


Chart A: NYMEX WTI and Brent Crude Oil
In Dollars per Barrel
80.00
75.00
70.00
65.00
60.00
55.00
1/3/2006
1/10/2006
1/17/2006
1/24/2006
1/31/2006
2/7/2006
2/14/2006
2/21/2006
2/28/2006
3/7/2006
3/14/2006
3/21/2006
3/28/2006
4/4/2006
4/11/2006
4/18/2006
4/25/2006
WTI in Cushing, Okla.
Brent (UK)

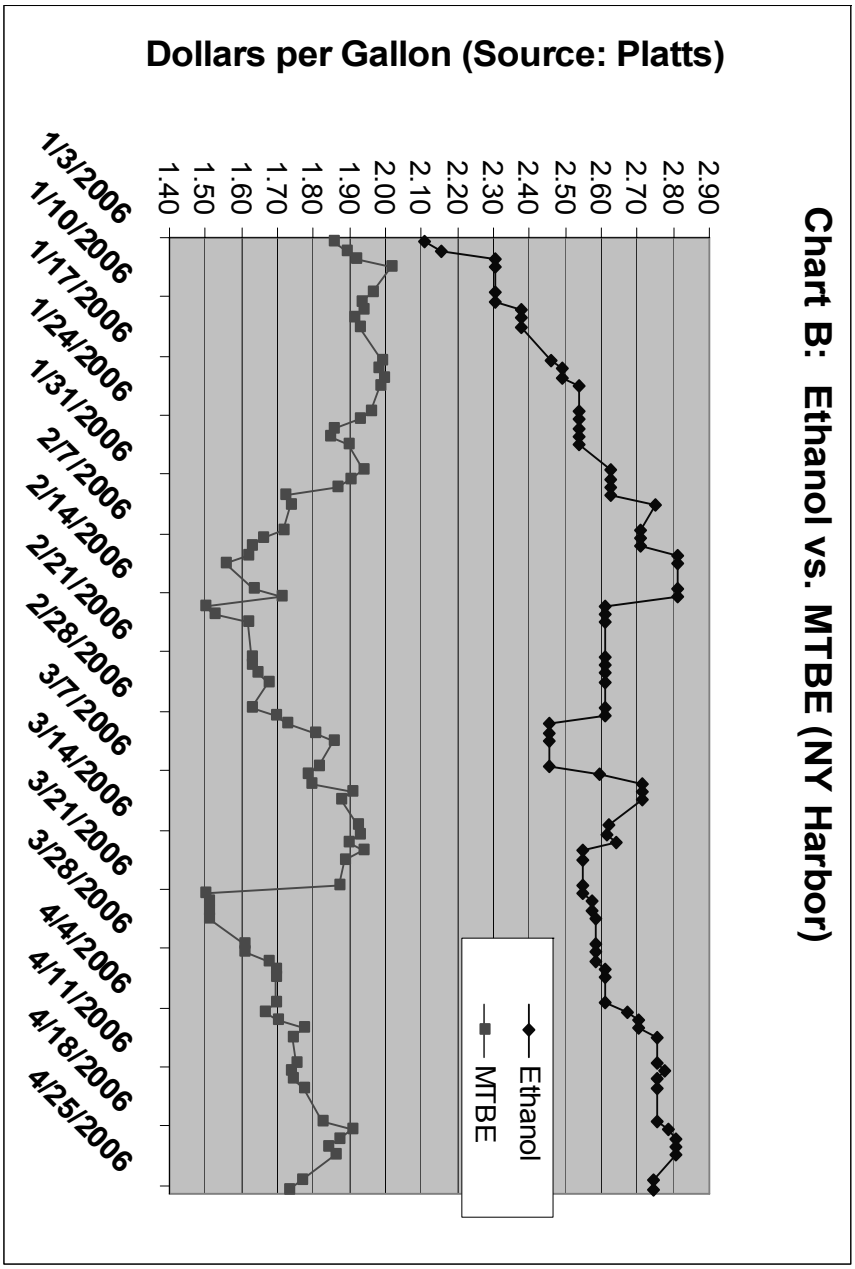


Chart B: Ethanol vs. MTBE (NY Harbor)
Dollars per Gallon (Source: Platts)
2.90
2.80
2.70
2.60
2.50
2.40
2.30
2.20
2.10
2.00
1.90
1.80
1.70
1.60
1.50
1.40
1/3/2006
1/10/2006
1/17/2006
1/24/2006
1/31/2006
2/7/2006
2/14/2006
2/21/2006
2/28/2006
3/7/2006
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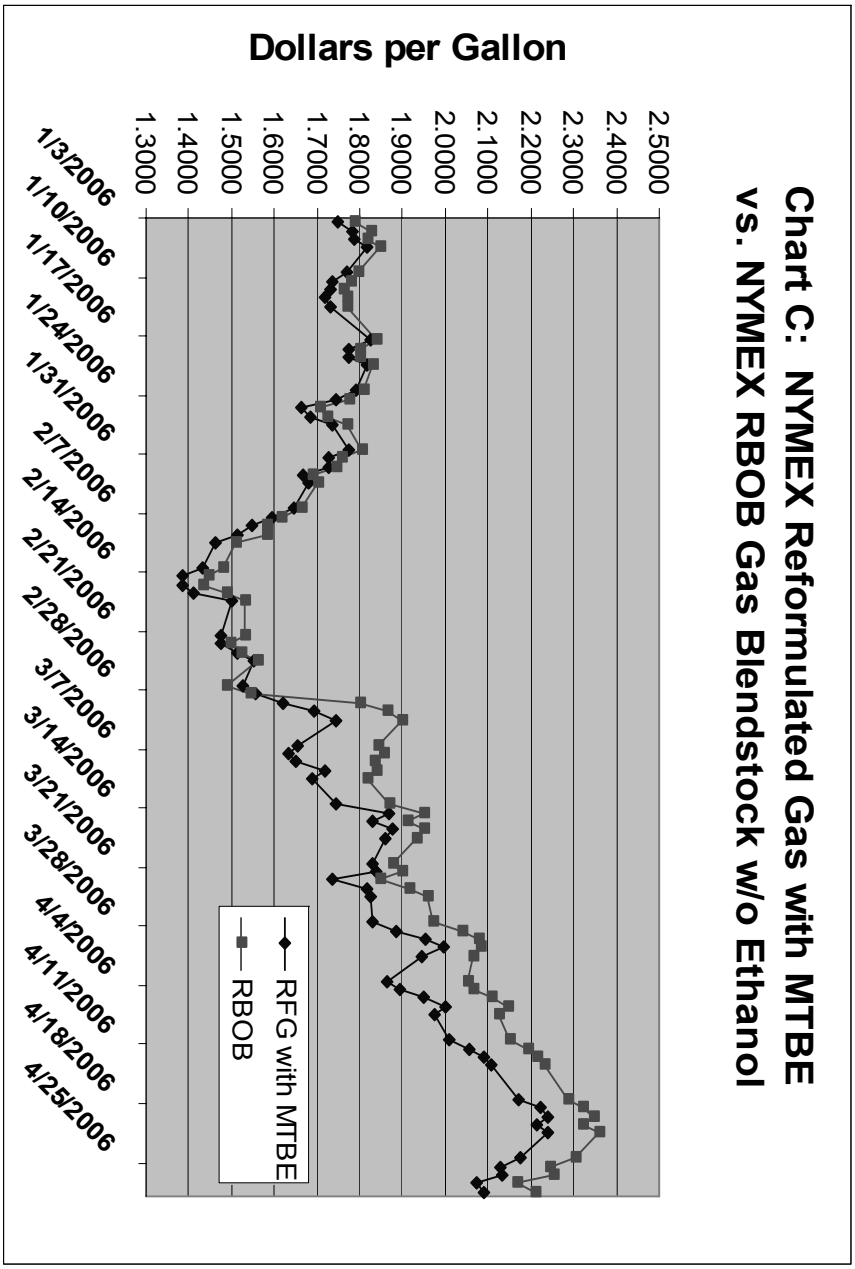
4/4/2006
4/11/2006
4/18/2006
4/25/2006
Ethanol
MTBE




MR. SHIMKUS. Thank you very much.

And now we turn to Ms. Orice Williams. You are recognized for 5 minutes. And welcome.

MS. WILLIAMS. Thank you.

Mr. Chairman and members of the committee, I am pleased to be here today to discuss our ongoing work on CFTC's oversight of energy futures. As you are well aware, ever-rising prices have resulted in a number of questions about oil and petroleum prices and the role that derivatives markets play.

Given the breadth of interest in these issues, GAO initiated work under the authority of the Comptroller General. My remarks today focus on this ongoing body of work. While it is too soon to provide findings and observations, we hope you find the overview of our work to date useful.

By way of background, futures markets consist of a variety of participants, including hedgers and speculators. Hedgers use futures to shift the risk of a price change onto speculators. Speculators assume the price risk that hedgers try to avoid in hopes of making a profit. Although speculators usually have no commercial interest in the commodities they trade, the potential for profit motivates them to collect market information regarding the supply and demand of commodities to anticipate the potential impact on prices. Oversight of futures is provided by CFTC and the exchanges where they trade.

Our ongoing work focuses on two broad issues: one, the players in energy futures markets, their activities, and changes in price volatility since 2000; and two, the oversight of the energy futures markets provided by CFTC.

In addressing the first issue, our ongoing work is designed to describe how energy derivatives function and to what extent market participants with different investment objectives affect the prices of energy futures.

To do this, we are focusing on markets and market participants, price discovery, market liquidity, and risk management practices. We are also collecting information on the over-the-counter settlement process and NYMEX prices.

We will discuss changes in the mix of participants and the use of new trading platforms in futures products. As part of this work, we are building on existing research by analyzing CFTC market data to determine historical trends in volatility for certain commodities, including oil and petroleum.

Our work will focusing on why volatility is an issue, how it is measured, and what the trends show. Through our analysis, we hope to address issues such as causes and implications of volatility.

The second area we are studying is how energy futures are overseen. While CFTC is the primary focus, we will also include other relevant regulators and self-regulatory organizations, such as NYMEX.

Specifically, we are reviewing CFTC's and NYMEX's surveillance programs, oversight provided by other agencies, and information collected through CFTC's large trader reporting system. We will also explore oversight of the over-the-counter and any other relevant markets. Our work will also include reviewing CFTC's and NYMEX's enforcement programs and analyzing settled cases.

Finally, we are in the process of assessing how CFTC is positioned to protect market users by focusing on CFTC's regulatory approach, structure, and resources as well as any potential gaps.

In closing, I would like to note that we fully appreciate the significance of these issues and hope that our report, which is scheduled to be issued later this year, will provide useful information to this committee and others.

This concludes my oral statement, and I would be happy to answer any questions that you may have.

Thank you.

[The prepared statement of Orice M. Williams follows:]

PREPARED STATEMENT OF ORICE WILLIAMS, DIRECTOR, FINANCIAL MARKETS AND COMMUNITY INVESTMENT, GOVERNMENT ACCOUNTABILITY OFFICE

United States Government Accountability Office

GAO

Testimony
Before the Committee on Energy and Commerce, House of Representatives

For Release on Delivery
Expected at 10:00 a.m. EST
Thursday, May 4, 2006

# FUTURES MARKETS:

# Approach for Examining Oversight of Energy Futures

Statement of Orice M. Williams, Director
Financial Markets and Community Investment

GAO-06-742T

Mr. Chairman and Members of the Committee:

I am pleased to be here today to discuss the design of our ongoing study of the Commodity Futures Trading Commission's (CFTC) oversight of futures trading in energy commodities. As you are aware, record high crude oil and natural gas prices have generated significant concerns by the public and members of Congress that the high and relatively volatile prices may be the result of factors other than market forces. Several members of the House and the Senate have expressed concerns over the upward trending prices and factors that may be causing the perceived increases in volatility of several energy commodities, including crude oil, gasoline, natural gas, and heating oil. As a result, we initiated this study under the authority of the Comptroller General. My remarks today focus on our ongoing study of (1) changes in energy futures markets and volatility since 2000 and (2) CFTC surveillance and enforcement activities in the oversight of energy futures trading.

This ongoing work will leverage results of our previous reviews of the financial and physical energy markets, and trading data from the CFTC and the New York Mercantile Exchange (NYMEX).[1] It will also be based on discussions and reviews of available information from officials and staff from several federal agencies, refiners, vertically integrated oil companies, associations representing end users of natural gas, investment banks, and hedge funds, as well as

[1] See U.S. GAO, *Energy Markets: Factors Contributing to Higher Gasoline Prices*, GAO-06-412T (Washington, D.C.: February 1, 2006); U.S. GAO, *Motor Fuels: Understanding the Factors That Influence the Retail Price of Gasoline*, GAO-05-525SP (Washington, D.C.: May 2005).

market analysts and academics. We will also be reviewing relevant CFTC enforcement cases and CFTC Inspector General reports and incorporating their results in our work.

In summary:

Our ongoing study explores how energy futures markets and market participants with different investment objectives affect futures and commodity prices in a complex and rapidly evolving marketplace. Some of these participants include producers and refiners, who use futures contracts[2] as a key tool to manage risk they face due to changes in prices. Since 2000, there has also been an increase in the number of new participants, such as hedge funds and investment banks. Our ongoing study will evaluate what market studies and other market data indicate as to whether energy futures prices have become more volatile. Specifically, we are looking at different ways of measuring volatility and reviewing recent studies on volatility by NYMEX, CFTC, Consumer Federation of America, and others. We are also using NYMEX trading data to document trends in volatility.

[2] Futures are one type of derivatives contract. The market value of a derivatives contract is derived from a reference rate, index, or the value of an underlying asset, including stocks, bonds, commodities, interest rates, foreign currency exchange rates, and indexes that reflect the collective value of underlying financial products. The regulation of derivatives generally varies depending on whether they are traded on exchanges (exchange-traded) or traded over-the-counter (OTC) and on the nature of the underlying asset, reference rate, or index. Futures obligate the holder to buy or sell a specific amount or value of an underlying asset, reference rate, or index at a specified price on a specified future date and are often traded on exchanges.

Our ongoing study also explores how CFTC's market surveillance program is used to monitor and detect market abuses in the trading of energy futures. We are also determining what fraudulent, manipulative, and abusive practices have been identified by CFTC and others in the trading of energy futures and how CFTC is positioned to protect market users from these practices. CFTC's surveillance program is one tool used to oversee the integrity of the futures market. CFTC uses its large trader reporting system and other sources such as relevant self-regulatory organizations (SRO) and other federal agencies to monitor for attempted manipulation in the futures markets. In cases of suspected fraud, manipulation or abuse, CFTC will undertake enforcement actions. As part of this study, we are looking at CFTC's authority and its resources to protect market users.

**Background**

Futures contracts are traded on regulated exchanges and are settled daily based on their current value in the marketplace. The key players in futures markets are hedgers, speculators, and brokers. Hedgers use futures to shift the risk of a price change onto other market participants such as speculators. Speculators may assume the price risk that hedgers try to avoid in the hope of making a profit. Although speculators usually have no commercial interest in the commodities they trade, the desire to make a profit motivates them to collect market information regarding the supply and demand of commodities to anticipate the potential impact of this

information on prices. Finally, there are brokers, who make the trade.

Oversight of the futures market is the responsibility of CFTC, which was created in 1974 as an independent agency responsible for encouraging competitiveness and efficiency in futures markets, ensuring their integrity, protecting market participants against manipulation, abusive trading practices, and fraud, and ensuring the financial integrity of the clearing process.[3] Through its oversight, especially its surveillance and enforcement programs, CFTC is responsible for enabling the futures markets to provide a means for determining the price of commodities—price discovery—and for offsetting price risk faced by market participants. Oversight is also provided by NYMEX, an SRO, that is itself regulated by the CFTC.

In the U.S. futures regulatory structure, SROs—the futures exchanges and the National Futures Association—provide industry oversight. Futures SROs, such as NYMEX, are responsible for establishing and enforcing rules governing member conduct and trading; providing for the prevention of market manipulation, including monitoring trading activity; ensuring that futures industry professionals meet qualifications; and examining members for financial strength and other regulatory purposes. Their operations are funded by the futures industry through transaction fees and

[3]According to CFTC, clearing is the procedure through which the clearing organization becomes the buyer to each seller of a futures contract or other derivative, and the seller to each buyer for clearing members.

other charges. CFTC oversees the SROs to ensure that each has an effective self-regulatory program.

**Changes in Energy Futures Markets and Volatility Since 2000**

Since 2000, there has been an increase in the number of market participants in the energy futures markets, such as hedge funds and investment banks, raising questions about the impact they have had on the market overall and volatility in particular. Futures contracts are also seen as a key tool that producers and refiners use to manage the risks they face due to changes in prices. Our work is designed to describe how energy futures markets and market participants with different investment objectives influence energy prices. To address this, we will provide an overview of the energy futures markets and the role played by various market participants. Further, we will discuss how the markets function to provide price discovery, liquidity, and risk management. We will also address markets other than NYMEX, such as the over-the-counter (OTC) market, and how these markets differ from NYMEX. Finally, we will explore NYMEX's role in providing price discovery for energy commodities and futures prices and their link to spot or cash prices.

As part of our work, we are also reviewing what market studies by CFTC, NYMEX and others have found to affect volatility. Specifically, we are determining how volatility is defined and identifying factors that impact volatility. We will also address whether available evidence suggests that new market participants are a factor causing volatility. In answering this question we will

analyze both CFTC and NYMEX trading data and studies that have addressed the causes of volatility in the futures markets.

**CFTC Provides Oversight Through Surveillance and Enforcement Activities of Energy Futures Trading**

CFTC provides oversight through surveillance and enforcement of energy futures trading and our ongoing work involves assessing how CFTC's market surveillance program is used to monitor and detect market abuses in the trading of energy futures. To address these issues we are evaluating both CFTC and NYMEX surveillance programs, with a focus on how CFTC uses its large trader reporting system data as part of its surveillance. This work will describe how CFTC commissioners are kept informed of surveillance and other market concerns. We will also describe how both CFTC and NYMEX surveillance programs provide oversight and how NYMEX monitors positions against specific limits to detect attempted abuses. This work will also document efforts of other agencies, including the Department of Justice, the Federal Trade Commission, and the Federal Energy Regulatory Commission in providing oversight to energy market activities.

We are also focusing on what fraudulent, manipulative, and abusive practices have been identified by CFTC and others in the trading of energy futures. We will provide information on the enforcement programs of CFTC and NYMEX, including the results of recent enforcement actions taken by CFTC and NYMEX and the settlements reached involving these enforcement actions. We are

also addressing the extent to which CFTC uses internal and external sources in developing enforcement cases. This includes discussing NYMEX's enforcement activities and how NYMEX coordinates these activities with CFTC.

Finally, we are exploring how CFTC is positioned to protect market users and the public from actual and potential abuses in the trading of energy futures. Areas we are focusing on include changes in CFTC's regulatory approach since the Commodity Futures Modernization Act of 2000 and staff resources available to accomplish its mission including the allocation of staff. Our current timeframe from completing this work is September 2006.

Mr. Chairman, this completes my prepared statement. I would be pleased to answer any questions that you or Members of the Committee may have.

**Contact and Acknowledgements**

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MR. SHIMKUS. Thank you very much.

Now the Chair recognizes the Chairman of the Full Committee, Mr. Barton, for 5 minutes.

CHAIRMAN BARTON. Thank you, Mr. Chairman, and thank you for chairing in my absence. I have done three things since I left here, and I am due to be doing another one right now, actually.

Thank you, each of you, for being here.

Let me start with you, Mr. Levin.

What is the futures margin? What is the margin requirement for energy futures right now on the market in the NYMEX?

MR. LEVIN. Understood. Mr. Chairman, it depends on which market you are speaking of. The futures margins are deposits, and we assess them and base them on our estimate of the risk that prices may move between now and the next settlement, which is the next day.

CHAIRMAN BARTON. Well, give me a range, then.

MR. LEVIN. Sure. In the crude oil market, for members and non-members, right now, it changes. We have different ones, because the members often do not hold positions overnight, many of them trade through their account and provide liquidity, is $3,500 per 1,000 barrels, but our contract right now--

CHAIRMAN BARTON. So that is three and a half cents on a dollar?

MR. LEVIN. No, three and a half dollars, I think. Yes, sir. And that is $4,750 for non-members. In the gasoline market, right now, it is $6,000 per contract, the same amount, 1,000 barrels, and for 10,000 BTU, which is natural gas, it is $7,500.

CHAIRMAN BARTON. So the most it is, on a percentage basis, is 7.5 percent?

MR. LEVIN. Yes, I think that is about right. That is a current right.

CHAIRMAN BARTON. Okay. And under current practices, that is not a regulated fee. It is set by the market makers themselves and the board of directors. Is that correct?

MR. LEVIN. We actually set those--

CHAIRMAN BARTON. Percentages.

MR. LEVIN. --contract costs, whatever you want to call it. It is more of a staff-driven process, and in fact, I am involved quite a bit on that.

CHAIRMAN BARTON. So you are looking at it.

MR. LEVIN. We are looking at it.

CHAIRMAN BARTON. There are lots of reasons that I want to participate in the futures market. I can be a producer who wants to lock in a specific price. I can be a consumer who wants to lock in, again, a specific cost. In my State, Southwest Airlines has publicly said that one of the reasons they have been able to maintain profitability is because they hedged in the futures market and locked in prices for aviation fuel, which is a good thing. It is good for Southwest. Now how high would you set that fee before it would be non-economic or problematic for the

producers and the consumers of the commodity in question to take a position for business reasons only?

MR. LEVIN. I think it really depends, Mr. Chairman, on each of those individual companies. Some companies may already believe that it is at that level, and they believe that their credit is so good that nobody should be requiring them to put any good faith deposit to participate in a market. It would be very difficult for me to speculate on what that level is. I am not sure for them, or for any company that, in general, it would be much different. And I don't want to take too much of your time, but--

CHAIRMAN BARTON. Oh, no. Every consumer in America is paying approximately $3 a gallon for gasoline, and Dr. Yergin was on the panel before you, and said in his testimony that $10 to $15 of the current price of oil is due to speculation. Now that is his opinion. What I am trying to get at is I believe in the futures markets and the derivatives markets as economic tools for our Nation's future prosperity. I am not down on that. But I am willing to think seriously about getting with the CFTC or the SEC or whatever the relevant regulator is and in the energy's futures, let us set some floor levels on margin costs to try and make it more difficult for speculators to speculate. There has got to be a level where a producer or a consumer who is using the commodity believes the price is too high and it is not economic for them to hedge. On the other hand, if we go the other way and set the price as low as possible, there is almost no risk for a speculator, especially somebody who is making the market, to take a position overnight, and if the market moves a certain way, you would make a pretty good piece of change, and they have really not put up any money.

When times are flush and prices are low, requirements can be low, but right now, if we can knock $10 or $15 a barrel off the price of oil by raising the margin requirement on the futures market for oil futures I would put that bill on the floor next week. Do you understand what I am saying? Now, I am not negative on what you are doing. I support the free market, but you have got an unregulated situation where guys in a back room somewhere are setting these levels. If you set it so low, there are a whole lot of folks that say, "Well, heck. I can take a position. I can scrape up $3,000 or $4,000 and take a position. And if things work right, boom, I am going to make a lot of money. And even if I lose my whole investment, I have only lost $3,000 or $4,000." And the people that are taking the short end of the stick are every one of our consumers who are paying at the pump. You know, if it is $20 a barrel out of $60, they are paying 33 percent more than they should, and 33 times 3--they are paying 99 cents a gallon more for gasoline than they should.

MR. LEVIN. I would like to respond to that. And I think you covered a lot of areas, and I think that, at least if I understood your understanding of how things happen in the market.

CHAIRMAN BARTON. And I am not an economics major.

MR. LEVIN. I may change some of the description that you just applied. But first off, I also state this may not change your view on anything that you said, but I think Dr. Yergin's point was not that speculators are causing $10 to $15 additional to market. I think he called it a security premium that he thinks is really there because participants in the market are not certain about future performance and ability to get supplies. And I don't think he suggested it was only in the New York Mercantile Exchange market, but I think he is suggesting that it is in the world market. And I am not even here agreeing that there is such a security premium or not. I certainly respect Dr. Yergin's opinion, but I think there was a big distinction. And I don't think he attached it to speculators.

CHAIRMAN BARTON. Let me put it this way. If the futures market in the next week, across the board, went down to $50 a barrel, wouldn't retail prices go down?

MR. LEVIN. I am not so certain how fast retail goes.

CHAIRMAN BARTON. Would it go down? You are not going to sit here and tell us that the futures market doesn't influence the retail price. The price that is on the New York Mercantile Exchange today affects the perception of where the price is going to be and the supply-demand availability. To err on the side of caution, if they see that price going up, everybody in the retail chain, from the refiner to the distributor to the retailer, is going to raise their price up. That is a fact. We have seen that happen. We have seen it go up 30 or 40 cents a gallon in Texas in the last 2 ½ weeks. Now there are a lot of reasons for it, I mean, Iran, Nigeria. And again, I am not negative on the futures market. I am not at all. But when I found out what the percentage for a margin is, if I want to go to a New York Stock Exchange and buy a common stock, I would put up 50 percent of the money, and in some cases, I think you have got to put up even more, but I can go buy a futures contract and put up 3 ½ or 4 ½ cents on the dollar. That is pretty good leverage, you know: 90/10 leverage, 95/5 leverage. That is not bad.

MR. LEVIN. But once again, and as far as a particular margin moment, but the New York Mercantile Exchange's prices, we believe, and I think evidence supports, do not just unilaterally go up. They go in tandem. Sometimes you do see other prices ahead of them. Sometimes you see it first.

CHAIRMAN BARTON. I understand.

MR. LEVIN. But to say that the prices fall, I appreciate that you understand, sir--

CHAIRMAN BARTON. I am not negative on the futures market. What I am is trying to find out is what we would need to do to raise the margin requirements so that the producers and the consumers of the commodities still can participate, but make it more expensive for the purely speculative player. The young lady to your left and her study, or the study that she is testifying on, indicates that speculators in the market are becoming a bigger factor. When pension funds are buying futures contracts, that, to me, sends up a red flag. You know? I don't have a problem with Boom Pickens, my good friend down in Dallas. He can play the futures market all he wants. But he also has enough money that if you raise the margin requirement--he is a smart boy and a wealthy boy--he is still going to be a player. But my God, you just said that you and a few guys kind of sit around the coffee table and decide what the requirements are going to be.

MR. LEVIN. No, I don't think that is how I said it. I said that it sounded like that. We aren't sitting around a coffee table. But getting back--

CHAIRMAN BARTON. Maybe you just send e-mails back and forth between your computer terminals, but--

MR. LEVIN. And also, just to make a distinction, when you have margin at the New York Stock Exchange, for that partial payment, you own that stock outright. When you have a margin at a futures exchange, you don't own anything.

CHAIRMAN BARTON. But you have a right to it.

MR. LEVIN. No, no. You don't have a right. In fact, you--

CHAIRMAN BARTON. If you exercise the contract, you do.

MR. LEVIN. But that is when it terminates.

CHAIRMAN BARTON. Right.

MR. LEVIN. At that point, you have to put up full value, and as we get closer to termination, you have increasing amounts of that.

CHAIRMAN BARTON. And as we all know, what percentage of those contracts go to term?

MR. LEVIN. A smaller percentage.

CHAIRMAN BARTON. Less than 1 percent?

MR. LEVIN. In terms of the form of delivery, I would say yes.

CHAIRMAN BARTON. Yes. Okay. We will be in touch.

MR. LEVIN. For the purposes that you said, sir, but we base our margin calculation, as I said, on the assessed risk in the market. We are able to utilize parameters from the market, a technical term, but one that is not that difficult to understand. We call it the implied volatility that is derived from some of the options and the futures pricing, but what

volatility refers to is the percentage representing a standard deviation of pricing.

CHAIRMAN BARTON. We have a volatility test, too. It is called the election. And the political volatility is pretty high right now on this. I don't begrudge the traders, but I am a lot more worried right now about the consumers of every Member of Congress on both sides of the aisle and that volatility in the marketplace, on the retail price of gasoline, is at a level that I think it is worthy of serious inquiry on how these margin requirements are set. And I think you can make a fairly good case that if we set them higher, the volatility in the oil market would go down, and the price in the oil market would go down. And at least in the short term, I think that would be a good thing for the American consumer and American economy. And I guarantee you, it would be a good thing for those of us that run for election.

Thank you, Mr. Chairman.

MR. SHIMKUS. The Chair now recognizes my colleague from Kentucky, Mr. Whitfield, for 5 minutes.

MR. WHITFIELD. Thank you, Mr. Chairman.

Ms. Williams, in your study, you note that you are looking at fraudulent, manipulative, and abusive practices that have been identified by the Commodity Futures Trading Commission and also enforcement that they are going to take. Could you elaborate on the type of practices that you found to be fraudulent or abusive?

MS. WILLIAMS. I think, based on the information we have collected to date, most of the activity taken by CFTC in the energy area involve natural gas in fraudulent reporting.

MR. WHITFIELD. Involve natural gas?

MS. WILLIAMS. False reporting was the specific issue in the natural gas market.

MR. WHITFIELD. Maybe you could give me an example of false reporting.

MS. WILLIAMS. I think it actually has to deal with certain reporting requirements, primarily in the over-the-counter market and the information that was being provided by participants in that market to the reporting body, that they weren't providing accurate information to the reporting body. And CFTC took action, because that could potentially affect the futures market.

MR. WHITFIELD. Was that a live threat or not?

MS. WILLIAMS. Based on what we have collected to date, I am not sure I could say that it was characterized as a live threat.

MR. WHITFIELD. Okay. Mr. Levin, we appreciate you being here today. And it is my understanding that there are other future exchanges

trading energy products in the United States other than your company. Is that correct?

MR. LEVIN. That is correct, Congressman.

MR. WHITFIELD. And does the Commodity Futures Trading Commission have authority to monitor trading of those markets to ensure that the prices are not manipulated?

MR. LEVIN. One of those markets is actually subject to regulation by the FSA, which is the authority that oversees commodities and securities regulation in the UK. The reason being that that is where their authority emanates from, and there are courtesies provided between the Commodity Futures Trading Commission of the United States to other exchanges that are under foreign authority. In this case, since I think you are talking about domestically-traded products, that, I think, the interpretation of that courtesy for foreign regulators and other exchanges was with the understanding it would be for products that are really foreign-based products, that there may be some interest in the United States to trade as well. And in this case, there is an exchange that is trading U.S.-based product very similar to our product, but it is subject not to the CFTC as the ultimate authority, but to the FSA.

MR. WHITFIELD. Do you view that as a significant issue?

MR. LEVIN. We have certainly been concerned about it and have raised it with the Commodity Futures Trading Commission, because it opens up the possibility of differential regulation. As examples, and with no disrespect intended to FSA, there are really different views on position limits between the CFTC and the FSA. But NYMEX products are subject to position limits. The FSA-regulated products are not, even though they are very similar. Also, there is a large trader reporting that takes place rather extensively under the CFTC, so we are subject to that for our U.S.-based products, but this other exchange is not for its U.S.-based products, because the FSA does not require that.

MR. WHITFIELD. Now would legislation be required to regulate that exchange, or can that be done administratively by the Commodity Futures Trading Commission?

MR. LEVIN. I think it can be done administratively by the CFTC, sir.

MR. WHITFIELD. And you are having ongoing discussions with them about that?

MR. LEVIN. Yes, officials from the exchange have raised that with the CFTC.

MR. WHITFIELD. Okay. Okay. I yield back the balance of my time.

MR. SHIMKUS. The gentleman yields back.

I would like to recognize myself for 5 minutes.

And Mr. Levin, in your testimony, you give an overview of the two primary functions of future markets, including that they permit hedging,

giving market participants to shift price risk, and that they facilitate price discovery and market transparency. Who regulates these functions?

MR. LEVIN. They are regulated at two levels, Mr. Chairman. They are regulated by the Commodity Futures Trading Commission. And we also, the exchange itself, has self-regulatory responsibilities that are the result of Congressional legislation, so we regulate it as well.

MR. SHIMKUS. Is the NYMEX the only futures exchange that is trading energy products in the United States?

MR. LEVIN. No, sir. There is another one that we were just discussing, but it is the International Commodity Exchange. It took over the International Petroleum Exchange, IPE, that was based in London. And it also trades in the United States. And it trades U.S.-based products in the United States, but subject to that foreign regulation.

MR. SHIMKUS. So it is not regulated by the CFTC?

MR. LEVIN. No, it is not. And I do not believe it is at all subject to the same self-regulatory responsibilities, but by no means do I mean that to say that they do not take oversight of what trades there seriously, but it is not subject to the same rigor as the CFTC.

MR. SHIMKUS. Well, would you say it is regulated or unregulated?

MR. LEVIN. Well, there are aspects that are much less regulated, because on the natural gas side, which is a different component. The product that is U.S.-based that is subject to the FSA are its crude oil futures, its WTI cash-settled product. And that is less regulated, far less regulated than we are, because of the position reporting, large trader recording position limits they are not subject to on the natural gas side. That is a lesser type of regulation. It is under CFTC authority. There are also the cash-settled based on a NYMEX product, in this case, our natural gas product. And it has even less regulation under the authority that they operate.

MR. SHIMKUS. Can trading in that market impact crude oil prices in the United States?

MR. LEVIN. I would consider that market to be part of the market in the same way that NYMEX and all of the other components that I identified are, and I would say absolutely. It is part of the world oil market. And trading in that market has an influence, as these other components do.

MR. SHIMKUS. But would you consider it a foreign market if it is located in the United States?

MR. LEVIN. Well, I think that, from our perspective, we certainly questioned that interpretation because it is a U.S.-based price. It is largely for U.S. participants and it is very relevant as a U.S. market.

MR. SHIMKUS. And going at some of the issues the Chairman had, and he is pretty impassionate. There is a function for you all. And you defined the margin as a good faith deposit, is that correct.

MR. LEVIN. I did, yes, sir.

MR. SHIMKUS. Have the current margin-setting procedures proven effective in preserving the financial integrity of the market?

MR. LEVIN. Well, they absolutely have. As everyone knows, there is a lot of volatility in the market, but the basis for which we set our margins have been very effective, and it is very infrequent that we find that we are under-margined. We consider it a very bad policy to be either under-margined, because we are not protecting ourselves against risky performance in our market. But over-margined, too, because that could lead to a lack of trading and the lack of a server to perform our role, the market would, thus, suffer and be a lot less transparent.

MR. SHIMKUS. And I wish you had had a chance to really get involved with the Chairman on that. How does the small percentage of the contract value protect the market against major market move, or does it?

MR. LEVIN. It is not that it protects against the major market move. Literally, it is that we have found that the means in which we apply our margins, that this implied volatility has been a very effective indicator of boundaries of where price may move until the next collection of payments. The risk management is also because every participant in the market is sponsored and guaranteed by a financial overseer of the many, many international banks, domestic banks, major financial entities, or others on the market. We found that there are margins in that collection and those guarantees that, despite bouts of volatility in the market, we have had very good financial performance in the market.

MR. SHIMKUS. And the Chairman, I ask my colleagues for forgiveness here, but if you raised the margins that the Chairman is addressing, what does that do to your market and what does it do to prices?

MR. LEVIN. Well, he had indicated, I think earlier, if I heard correctly, a percentage which was arbitrary. There may be times in our market where we have had margins that high because of our risk assessment. I think that would drive virtually all participation away. And then our concern is that we will lose the benefits of the futures market.

MR. SHIMKUS. Thank you.

The Chair recognizes the gentleman from Michigan for 5 minutes.

MR. STUPAK. Thank you, Mr. Chairman.

I am glad to see that members are starting to focus on this futures market, because we have been pushing legislation and trying to get

hearings on our legislation, and I tried to help investigate this high price of oil. And one of the issues we came up with and thought of on how there may be some things that we can help to bring some stability to the price and then also give the relief to the taxpayer, or I should say to those that are caught up with gas. So I am glad to see all of the interest in it. I am sorry the Chairman is back and forth. I was actually on the floor on that amendment, so we have votes on the floor.

So let me get to it.

Mr. Levin, as you put in your statement, trading on NYMEX is transparent, open, and competitive because of your reporting system. So does it not make sense to provide this same transparency, open process of reporting to the off-market traders or the OTCs, as they are called?

MR. LEVIN. Congressman, obviously, given the transparency we operate under and provide, we are great supporters of it. We also recognize that there are transactions in the market that, just in general and philosophically, that are private and that maybe do not require or maybe are concerned that would become advocates in intruding too overbearingly to private company transactions. I certainly understand the sensitivity of the topic, and there could be a perspective that supports it, but we are also very concerned with even the well-intentioned policies that begin to intrude more and more into principal to principal commerce. There could be some unintended consequences. And that is why we are somewhat timid to come out and endorse something like that. I wouldn't want it, as I said, to be misinterpreted, though. We operate as a transparent institution, and we are great supporters of transparency.

MR. STUPAK. That leaves part of the private operation more susceptible then to greater speculation, greater margins, greater price increases, greater fluctuation in price, because you need to know what are the motivating factors behind some of these.

MR. LEVIN. It is so early, it is possible. If they are truly private, though, they may have no influence beyond those individual transactions and not get reported elsewhere in the market, and I think that is--

MR. STUPAK. But you need to know how much is there, I mean, how much is private that OTC is trading. Some estimates, and I was going to ask Ms. Williams if she wanted to join in, please do, of the off-market trading could be as high as 60 to 75 percent. Is that fair to say on all future energy trading?

MR. LEVIN. In all honesty, we don't know, either, how much there is, and we have ourselves over the years tried to make estimates.

MR. STUPAK. So what is your best-guess estimate?

MR. LEVIN. You know something? I don't know what my best guess is. I can tell you sometimes people have told us that over-the-

counter is much more than on exchange, but we think that when we heard more about that, it sounded like there was multiple counting of the same transactions. I would say somewhere, maybe it could be, a good guess, as much as on exchange, but it could be more. But that would be adding all of the exchanges together. So there is a fair amount of over-the-counter trading. There clearly is.

MR. STUPAK. I assume that to mean 25 percent?

MR. LEVIN. Oh, no, before the market we were referencing before, the cash-settled WTI at the other exchange, under the IPE, they are grant trading. If you had added their grant trading and our trading, it might be as large as all of that volume together.

MR. STUPAK. Okay. And Ms. Williams, does the GAO have an ability to tell exactly how much futures trading is occurring off the market?

MS. WILLIAMS. I wouldn't say that we have the ability. This is one of the issues that we are trying to get our arms around, but there is no central source for the information. So we are not likely to be able to come up with a number for the over-the-counter market.

MR. STUPAK. Sure. Okay. Is that something you are going to try to address in the GAO report?

MS. WILLIAMS. Yes, that is something that we are trying to address.

MR. STUPAK. Mr. Levin, you also point out in your statement that because of the transparency of NYMEX trading, futures prices use the set prices on the cash market, otherwise known as price discovery function. Does off-market trading affect this price discovery?

MR. LEVIN. We believe, I think indirectly it does, because in many cases, the over-the-counter market has some active organizations that are dealers in that market. And they have many customers. And sometimes, their transactions are more customized. Sometimes they are rather standardized. But in their collecting of transactions, they also manage their risk in markets such as ours or others like it where with others in the cash or over-the-counter markets. So there is a lot of multiple trading that finds its way into the collection of transactions. And in that sense, I think it has an influence, and I think, as I indicated earlier, there is kind of simultaneity as well as a reactor-ship between all of these transactions.

MR. SHIMKUS. If the gentleman would wrap, we would give Dr. Burgess--

MR. STUPAK. Just one quick question.

How many barrels are traded on NYMEX every day, just to give us some reference point here?

MR. LEVIN. I think these days, in a very active market, there has been somewhere in the neighborhood of 250 million barrels a day. I think that is a ballpark.

MR. STUPAK. Thank you both for your interest.

MR. SHIMKUS. And thank the Chairman for all of the gracious time I offered.

MR. STUPAK. Thank you, Mr. Chairman.

MR. SHIMKUS. The Chair recognizes the gentleman from Texas for 5 minutes.

MR. BURGESS. Thank you, Mr. Chairman.

Ms. Williams, you talk about the CFTC and how they have the ability or need the ability for oversight. Do they have all of the tools they need at this point?

MS. WILLIAMS. That is one of the things that we are looking at in the course of our study, and I am not in a position to give a specific response now, but we are looking at that.

MR. BURGESS. Are you going to follow up with the committee, perhaps, with a written response, then, to that?

MS. WILLIAMS. I will be glad to do that.

MR. BURGESS. I think that would be very, very useful. It would give us some direction, or we will come up with some tools, and they may not be the tools that you need.

Mr. Levin, last summer we passed the energy bill. We put MTBE in some legal peril, and it has been abandoned. And maybe that is a good thing, ultimately. Maybe it is not. But the result has been, with this summer's driving season upon us, we see the prices increase. How much was that anticipated by the market? Did you guys see that coming?

MR. LEVIN. We knew that the transition would be difficult, Congressman, because there have been other transitions environmentally-based for the last, really, 15 or 16 years in the gasoline market, in particular. And the full consequence is that there is a lot less forward trading and thus forward price protection--

MR. BURGESS. My time is really very short, and we have got to go vote, but can I just ask, was there any sort of advisory or warning put out by the Mercantile Exchange about this change?

MR. LEVIN. No, I mean, I think they really accepted those regulations as they went in. And we couldn't have predicted, because, as you indicated, it was really a reaction to something in the bill, which was that it was stated explicitly they wouldn't be given protection by the Government. And so a lot of the industry finally decided that they are going to abandon it. There was no official date given. It was hard to--

MR. BURGESS. I think that the reasons, and I think the American people could accept the reasons. It is going to cost us something to get MTBE out of our lives, and if it is worth it to do that, we are willing to pay for it. But I guess what bothers my constituents when I talk to them is that why didn't we see this coming? Why was there no warning?

Maybe that is the committee's fault. Maybe that is the House's fault? Maybe that is the Senate's fault. I don't know. But from your perspective, with NYMEX, was there any sort of advisory circular put out there, "Hey, guys. Watch this, because MTBE is out of the picture. When we reformulate next summer, it is going to be big trouble. If anything else happens, like two hurricanes, like takeover in Bolivia, you name it."

MR. LEVIN. Congressman, it really wasn't in that context. It would be hard to predict the timing. We knew the transition would be difficult, but because it would really be commercially driven, we might have thought it would coincide with the summer, but even there, we have two gasoline products. Reformulated is still trading more at NYMEX than the replacement in spite of the fact that there has been this transition taking place. So we haven't seen that full commercial transition, and that is why it is difficult to predict even now, and certainly back then, when it would take place and exactly how it would take place.

MR. BURGESS. Well, looking at one of your charts, I guess chart B, it makes me very concerned about price gouging by the ethanol producers.

MR. SHIMKUS. The gentleman's time has expired. No.

MR. BURGESS. When we look at that, well, can you explain the factor by which the price of ethanol has increased? Is it because of increased demand because of replacement of MTBE or are there other factors? I guess the thing is, we heard this in the policy committee this morning, it is the same price as a gallon of gas most places in the country, at least in South Carolina.

MR. LEVIN. I think it is demand driven. And we are concerned. We know, too, that there isn't a big difference between, as you said, the MTBE and the ethanol. I don't know that it is a one-to-one replacement between them, but nonetheless, right now, our blend-stock gasoline is trading above ten cents a gallon on the wholesale market, and you still haven't added the ethanol in yet, so that will raise that even more at the time that they are combined.

MR. BURGESS. So they affect the blend-stock and not just the ethanol individually?

MR. LEVIN. I think it is mostly the ethanol, but yes, there is a piece of that that is blend stock, yes.

MR. BURGESS. Mr. Chairman, we have got to go vote. I will yield back.

MR. SHIMKUS. The gentleman yields back. We have about two minutes and 58 seconds to get down to the floor to vote. I think we are going to be fine.

We want to thank the second panel for waiting and then for your answers. It has been very, very helpful. And with that, I--

MR. BURGESS. Mr. Chairman, before you adjourn, could I just ask unanimous consent that we do get those guidelines from the GAO when that report is ready?

MR. SHIMKUS. Without objection, so ordered.

And with that, I adjourn the hearing.

[Whereupon, at 1:44 p.m., the committee was adjourned.]

RESPONSE FOR THE RECORD BY DANIEL YERGIN, CHAIRMAN, CAMBRIDGE ENERGY RESEARCH ASSOCIATES

**The Honorable John D. Dingell**

1. **Your written testimony of May 4, 2006, (pages 13-15) criticizes the system for reserve disclosure mandated by the Securities and Exchange Commission, and states that: "Modernizing the reserves disclosure would clearly improve understanding of the resource base and its potential and provide clarification for purposes of energy security." Please describe and explain the specific changes that you believe are necessary.**

The basic need is to update the SEC's "1978" system of reserves disclosure to take into account the major and indeed massive changes in four dimensions – in technology, the globalization and commoditization of markets, the scale and complexity of projects, and the globalization of the energy industries and capital markets. For instance, the deep water frontier in the late 1970s was 600 feet; today, it is more like 12,000 feet. Computing had only a tiny fraction of the power it has today. Also, at the time the system was put in places, prices were controlled by the federal government, and the documentation from the time indicated that the expectation was that prices would change as the result of decisions involving federal price controls. Finally, it is important to note that the 1978 system was created primarily for the onshore U.S. industry, and the industry is now very much more than US and very much more than onshore.

In designing the 1978 system, the SEC relied on the primary source for defining "proved reserves." That was the definition, and the expertise around it, developed and promulgated by the leading professional and technical society, the Society of Petroleum Engineers (SPE) in 1965, with some modification thereafter. Since then the SPE has updated its definitions three times and is in the process of updating them again. The SEC, however, has not revisited its definitions since 1978. Modernizing the SEC's definitions would provide investors with more complete information and would provide a more thorough understand of the overall reserve base, grounded in today's technology.

To do this, it would be sensible for the SEC to reengage with the contemporary expertise and current technical knowledge. The upstream oil and gas industry routinely uses definitions and guidance issued by the SPE's Oil and Gas Reserves Committee to calculate reserves. The SPE definitions are the subject of continuous dialogue among academics, technical experts, and industry participants; and they reflect the most up to date accepted practices. Their evergreen nature makes them robust as a standard and benchmark.

A striking example of what would be achieved were the SEC to update its definitions would be the inclusion of oil produced from oil shale and oil sands in the definitions of proved reserves. It is expected that Canadian oil sands could reach 2 mbd of production by 2010—the equivalent of a quarter of total current US liquids production. The United States will be the major market for this resource. Yet, currently, under the 1978 system, there is little clarity as to the nature of these resources.

2. **According to a March 16, 2006, letter from the Honorable Christopher Cox (copy attached), the SEC is working with the International Accounting Standards Board's Extractive Industries Project Team to establish a single set of reserve and resource definitions for both the mining and oil and gas industries. The project is intended to achieve**

**modernization and greater convergence between the definitions and the related accounting principles. Please explain why this undertaking is or is not responsive to your concerns.**

While we applaud the workings of the IASB and the objectives of establishing a convergence in accounting standards, including with disclosure of oil and gas reserves, we do raise the question as to the speed and momentum of this project. We believe that the SEC could effectively undertake a direct and prompt modernization of the 1978 system, thereby reaffirming its leadership and authority in this area.

3. **The SEC letter states at page 2 that: "Reserve volumes are not included as assets in audited balance sheets because of the inherent difficulty of accurately estimating them. As a result, SEC and FASB rules direct oil and gas exploration companies to provide a significant amount of supplemental information relating to their reserves in an unaudited footnote to their financial statements." Do you agree or disagree with this treatment, and why?**

We agree with the current approach—it is not practical to include reserves volumes in the audited balance sheets. However, we think that some re-examination of the current SEC treatment may be warranted in a different direction. The SEC permits presentation of additional data in an un-audited footnote. However, it appears that the intention of the original drafters of the regulations was that the disclosures represented a minimum level of disclosure and that companies should be encouraged to disclose additional data if they believed it would better inform investors. More recently registrants have been discouraged from providing information beyond the proved level. There is a case for the SEC's encouraging companies to disclose any additional information they believe provides a fuller picture than just the content of the footnotes mandated by FAS69 rather than to discourage it, and that case should be examined.

4. **The SEC letter further notes that only one (El Paso Corporation) of the 10 largest oil companies has reported any material weaknesses in its internal controls over financial reporting, but warns that "internal controls regarding the compilation and presentation of reserve disclosures are not covered by the internal control reports." Should they be? Why or why not?**

There is no obvious reason to require the bringing of oil and gas reserves disclosures within the internal control reports. It is not at all clear that the additional costs and efforts would be justified nor that it would lead to any increase in the reliability of reserves estimates.

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