PUMPING UP PRICES: THE STRATEGIC PETROLEUM RESERVE AND RECORD GAS PRICES

HEARING

BEFORE THE

SELECT COMMITTEE ON ENERGY INDEPENDENCE AND GLOBAL WARMING HOUSE OF REPRESENTATIVES

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PUMPING UP PRICES: THE STRATEGIC PETROLEUM RESERVE AND RECORD GAS PRICES

THURSDAY, APRIL 24, 2008

HOUSE OF REPRESENTATIVES,
SELECT COMMITTEE ON ENERGY INDEPENDENCE
AND GLOBAL WARMING,
Washington, DC. ÷

The Committee met, pursuant to call, at 10:00 a.m., in room 2212, Rayburn House Office Building, Hon. Edward Markey (chairman of the Committee) presiding.

Present: Representatives Markey, Blumenauer, Inslee, Larson, Herseth Sandlin, Hall, Sensenbrenner and Shadegg.

Staff present: Morgan Gray.

The CHAIRMAN. Good morning, and welcome to this hearing by the Select Committee on Energy Independence and Global Warming on the subject of Pumping Up Prices: The Strategic Petroleum Reserve and Record Gas Prices.

This summer families all across America will pile into their cars to take their vacations. Unfortunately, as a result of nearly eight years of the Bush administration's energy policy, they will face gas and oil prices that are skyrocketing out of control with no end in sight.

Earlier this week oil reached yet another all-time high, trading above $119 per barrel. The price of oil has risen by $100 a barrel since President Bush took office. American consumers are paying the price at the pump for this administration's failed energy policy. They are being tipped upside down by the big oil companies. They are being tipped upside down by OPEC, with money being shaken out of their pockets at the pump every day across America.

Gas prices have more than tripled over the last six years. The price of a gallon of gas jumped 12 cents in just the last week alone, and more than a quarter in the past month. American families are now paying $3.53 per gallon every time they fill up, and the Department of Energy projects that gas may reach $4 a gallon by this summer.

And what has been the Administration's response to this energy crisis? Well, earlier this week, Energy Secretary Bodman said, "I have done everything I know how to do with OPEC." Rather than taking action to help consumers, it seems that the Bush administration's response is to throw up its hands and to say that there is nothing to be done.

Well, there are things that can be done. Earlier this year, the House passed legislation that would redirect $18 billion in tax breaks for big oil to promote renewable fuels and clean energy. However, the Bush administration continues to oppose this legislation that would move us away from a fossil fuel future and help provide consumers with long-term relief from high oil and gas prices.

Democrats in the House have passed four bills this Congress to address high prices and break our dependence on oil. This administration has answered with tax breaks for big oil and tough breaks for American consumers. The Bush administration is ignoring actions that would provide consumers with relief right now.

The United States currently purchases 70,000 barrels of oil every day to fill the Strategic Petroleum Reserve, which already contains over 700 million barrels and is roughly 97 percent full. By law, the Strategic Petroleum Reserve must be filled "as expeditiously as possible without incurring excessive cost or appreciably affecting the price of petroleum products to consumers."

With the price of oil at $119, removing 70,000 barrels of oil a day from the market to build the Reserve is both incurring excessive cost for the Federal Government and affecting, in a negative way, runaway oil and gas prices. Based on projections by the Bush administration's own Department of Energy, ending the fill of the Reserve could reduce prices by about $2 per barrel of oil and 5 cents per gallon of gas.

Not only should the Bush administration stop filling the Reserve, it should also release oil onto the world market as a weapon to end escalating prices. These two actions would send a strong signal to speculators and to OPEC that Americans won't be held hostage by high prices.

Earlier this month, the number two executive at Exxon Mobil testified before this Committee that speculation, along with geopolitical instability and a weakening dollar, was responsible for half of current oil prices. That based only on oil supply and demand, the price of a barrel of oil should be only $50 to $55 a barrel.

However, President Bush continues to refuse to use the Strategic Petroleum Reserve to pop the speculative bubble. The Bush administration is willing to deploy our National Guard Reserves in Iraq, but it refuses to deploy our oil reserves to protect consumers and our economy.

If President Bush were to announce his intention to release oil from the Strategic Petroleum Reserve today, it would put an immediate end to the speculative feeding frenzy that is driving up prices. Releasing oil from the Reserve is something that can be done to help American families this summer. It is high time that the Bush administration does it.

Now I would like to turn to recognize the Ranking Member of the Select Committee, the gentleman from the State of Wisconsin, Mr. Sensenbrenner.

[The prepared statement of Mr. Markey follows:]

THE SELECT COMMITTEE ON
ENERGY INDEPENDENCE AND GLOBAL WARMING

Opening Statement for Chairman Edward J. Markey
"Pumping up Prices: The Strategic Petroleum Reserve and Record Gas Prices."
Select Committee on Energy Independence and Global Warming
April 24, 2008

Good morning.

This summer, families all across America will pile into their cars to take their vacations. Unfortunately, as a result of nearly eight years of the Bush Administration's energy policy, they will face gas and oil prices that are skyrocketing out of control with no end in sight. Earlier this week, oil reached yet another all time high, trading above $119 per barrel. The price of oil has risen by *$100* since President Bush took office.

American consumers are paying the price at the pump for this Administration's failed energy policy. They are being tipped upside down by Big Oil companies. Gas prices have more than tripled over the last six years. The price of a gallon of gas jumped 12 cents in the last week alone and more than a quarter in the past month. American families are now paying $3.53 per gallon every time they fill up, and the Department of Energy projects that gas may reach $4 a gallon this summer.

And what was the response earlier this week from Energy Secretary Bodman to this energy crisis? "I have done everything I know how to do with OPEC." Rather than taking action to help consumers, the Bush Administration's response is to throw up its hands and say there is nothing to be done.

Well, Mr. Secretary, there are things that can be done. Earlier this year the House passed legislation that would redirect $18 billion in tax breaks for Big Oil to promote renewable fuels and clean energy. However, the Bush Administration continues to oppose this legislation that would move us away from a fossil fuel future and help provide consumers with long-term relief from high oil and gas prices.

Democrats in the House have passed four bills this Congress to address high prices and our dependence on oil. This Administration has answered with tax breaks for Big Oil and tough breaks for American families.

The Bush Administration is ignoring actions that would provide consumers with relief right now. The United States currently purchases 70,000 barrels of oil every day to fill the Strategic Petroleum Reserve, which already contains over 700 million barrels and is roughly 97 percent full. By law, the Strategic Petroleum Reserve must be filled "as expeditiously as possible, *without incurring excessive cost or appreciably affecting the price of petroleum products to consumers*." With the price of oil at $119, removing 70,000 barrels a day from the market to fill the reserve is both incurring excessive cost for the federal government and affecting runaway oil and gas prices.

Based on projections by the Bush Administration's own Department of Energy, ending the fill of the reserve could reduce prices by about $2 per barrel of oil and 5 cents per gallon of gas.

Not only should the Bush Administration stop *filling* the reserve, it should also *release* oil onto the market as a weapon to end escalating prices. These two actions would send a strong signal to speculators and to OPEC that Americans won't be held hostage by high prices. Earlier this month, the number two executive at ExxonMobil testified before this Committee that speculation, along with geopolitical instability and a weakening dollar, was responsible for half of current oil prices – that based only on supply and demand, the price of a barrel of oil should only be $50-$55!

However, President Bush continues to refuse to use the Strategic Petroleum Reserve to pop the speculative bubble. The Bush Administration is willing to deploy our National Guard reserves but it refuses to deploy our oil reserves to protect consumers and our economy. If President Bush were to announce his intention to release oil from the Strategic Petroleum Reserve today, it would put an immediate end to the speculative feeding frenzy that is driving up prices. Releasing oil from the reserve is something that can be done to help American families this summer. It is high time the Bush Administration does it.

And now I would like to recognize the Ranking Member of the Select Committee, the gentleman from Wisconsin, Mr. Sensenbrenner.

Mr. SENSENBRENNER. Thank you very much, Mr. Chairman. I am not going to make a partisan rant this morning, because this is a serious problem and it should rise above partisanship.

Sometimes administrations have tapped the Strategic Petroleum Reserve effectively. Sometimes they haven't done it and there have been consequences. Sometimes they have done it and it has been ineffective. Sometimes they haven't done it and it has been effective. And I don't know whether tapping the Strategic Petroleum Reserve or not is going to help or have no effect on the cost of high gas prices here in America.

What I will say is that the problem that we face is one of lack of supply. And the Chairman referred to the hearing that we had earlier this month where either the CEOs or their representatives of the five major domestic oil companies came to testify. And in my five minutes of questioning, I asked them point blank, what would be the single most important thing that Congress can do to lower prices of gas at the pump? And every one of them said "increase domestic production."

Now, what has this Congress done? We have voted down every effort to increase domestic production. We have taxed or taken away tax credits for domestic production, which was referred to by the Chairman, which means it is cheaper to buy oil from OPEC, because we have taxed domestic production so high.

Now, it seems to me that the time has come to quit the partisan shots and to start going back to Economics 101. We do need to increase the supply of petroleum. Tapping the domestic petroleum reserve, or not filling it any further, is going to be literally a drop in the bucket compared to the huge amount of oil that is used both in the United States and worldwide.

But I think that we ought to start looking at serious issues relative to this, rather than trying to get sound bites on the network news. And I hope this hearing will allow us to get serious.

I yield back the balance of my time.

The CHAIRMAN. Great. The gentleman's time has expired.

The chair recognizes the gentleman from New York State, Mr. Hall.

Mr. HALL. Thank you, Mr. Chairman. I was recalling a hearing myself, and it was interesting to hear the CEOs of the five top oil companies, as the Ranking Member said. Their main recommendation was to increase domestic production. It just happens to be production of the product that they make profits on, in fact record profits in the history of all industries in recorded time.

We are, in fact, working on increasing domestic production of many other kinds of fuels to try to phase out the oil dependency, not just foreign but oil dependency in general, that is damaging the environment, damaging our balance of trade deficit, damaging our health, damaging the climate, damaging our standing in the world and our involvement—very costly involvement, I might say—in military conflicts in unstable parts of the world to secure those oil supplies.

But everybody here knows that oil and gasoline has gone through the roof, already exceeding $4 in some parts of the country. We didn't get into this hole overnight, and there is no silver bullet that will get us out of it immediately. I am proud that Congress has

acted to pass sweeping legislation to raise fuel economy, provide tax incentives for green energy development, and to establish a green collar workforce, so that we can get back to being a leader, being the leader in the world in energy and economic policy on the right track, rather than giving other countries a 20- or 30-year head start on such things as hybrid vehicles.

People in my district talked to me, my constituents in the 19th District of New York, talked to me about how much they want to do and what they can do. From the students—high school students at Arlington High School in Dutchess County, New York, who recently put together plans for a solar system on the roof of their high school, and got half the money from New York State and I was able to secure the other half of the money in a private grant for them, to a local company that is making ethanol gas that they can spin a turbine with and make electricity, and also hydrogen that they can fuel hydrogen fuel cells from from municipal solid waste.

There is such a wide range, not just solar and wind and all of the geothermal and the ones everybody talks about, but there are a lot of new sources of energy that are coming to play, and that with the proper subsidies and the proper investments and research and development dollars will come to play.

So I would hope that that's the direction that we will go in, and I encourage what the Chairman is suggesting—that for now in this crisis situation we stop purchasing oil for the Strategic Reserve.

And I yield back.

The CHAIRMAN. The gentleman's time has expired.

The chair recognizes the gentleman from Arizona, Mr. Shadegg.

Mr. SHADEGG. Thank you, Mr. Chairman, and I would like to commend you for calling this hearing on gas prices and, more specifically, on what is pumping them up and what we can do about it.

I want to begin by welcoming a fellow Arizonan and a personal friend, Dave Berry, Vice President of Swift Transportation. I believe you will find him to be very knowledgeable about the impact of high fuel prices on our entire economy, and I think—I know I am looking forward to his testimony, and I think it will be helpful to the Committee.

High gas prices are an extremely serious problem for all Americans, American consumers and American businesses. And, therefore, it is important that we identify the reason for those high prices and, more important, that we do what we can to alleviate them.

I think in this Committee I have repeatedly said they are a unique problem for those of us out West who drive great distances, both in commuting back and forth to work or in taking summer vacations. In many instances, much more travel, much more driving time, and much more mileage than those who live in the East.

I would suggest that gas prices are most appropriately addressed by looking at the relationship between supply and demand. During the last 25 years, world energy demand has increased by 60 percent. The Energy Information Administration predicts that demand in the United States alone will grow by 19 percent through 2030.

I wholeheartedly agree, as the Chairman knows, with his sentiment that we have to find alternative forms of energy. But every single expert that has been before this Committee, and that I have talked to, has said that at least in the short run we are looking at an oil-based economy. At least for today. We are talking about the price spike in gasoline over the last 60 to 90 days, or, at most, over the last 12 months, which has been stunning and has had a dramatic impact on our constituents.

I don't think that alternative forms of energy are going to go at that issue, and so we are looking at whether or not speculation has driven up the demand. One issue here today is: could we deal with that speculation by addressing the SPRO and perhaps releasing some fuel from it?

I would suggest that a much greater signal in the wrong direction has been sent to speculators by all of the potential sources of oil that we have locked up in this country and made unavailable, on the outer continental shelf and the inner mountain west, in coal-to-shale or shale-to-oil programs, and that we have sent, at least in the short run in this Congress, by refusing to adopt policies that would open up our domestic supply, even where it can be done in a very rational and safe way, the wrong signals, which have driven up the cost of gasoline for our consumers dramatically in the short run.

Thank you, Mr. Chairman.

The CHAIRMAN. Okay. The gentleman's time has expired.

The chair recognizes the gentleman from California, Mr. McNerney.

Mr. MCNERNEY. Thank you, Mr. Chairman. I want to thank the witnesses for agreeing to testify here today. Many of the issues that we consider in Congress are topics that the average person may not—may only rarely consider in their daily lives. But I can tell you, the issue we are discussing today, people are watching, they are interested in.

You can ask any commuter in my district or around the country how much it cost for them to fill their tank with gas the last time, and they will tell you the exact number. And they will tell you how much more it was than they paid the week before. So this is an issue that is affecting everybody's lives in this country.

And in our current economy, oil and gas do drive progress. And whether you are just going to the beach or you are driving to work on a Thursday, high gas prices are a constant consideration. Given the recent increases in prices, and the prospect for this continuing, I am hopeful that the panel today can shed some light on the importance of the Strategic Petroleum Reserve, how we might be able to lower the price of gasoline by manipulating what goes in and what does go in the SPR. And I am looking forward to your testimony to help us understand that.

And with that, I yield back.

The CHAIRMAN. Great. The gentleman's time has expired.

The chair recognizes the gentleman from Washington State, Mr. Inslee.

Mr. INSLEE. Thank you. I think there are four things we can do about energy prices, three short-term and one long-term. The ad-

ministration has done zero out of those four, and we are here to talk about them. I just want to outline them.

First, we can do something with the SPRO to send a signal to the speculators, which are a significant part of the reason for the runup in these prices. We heard Exxon Vice President Simon tell us that speculation was a significant part for the reason for these extraordinary volatile prices. What we can do is send a message to the speculators that we are going to stop at least increasing the capacity of the SPRO, and the reason is is when your house is on fire it is more important to get the hose than an additional policy of insurance.

And that is the situation right now. We need some water. We need less insurance. At the moment, that is clearly something we should do. That is the first thing. The administration has refused to do it.

Second, we should clearly bring in the over-the-counter market for oil futures into the jurisdiction of the Commodities Future Trading Commission. We have these markets transparent and open and regulated in oranges, soybeans, wheat, sorghum, but not oil and gas. It is insane to have such a fundamental part of our economy open for the wild west speculation that is going on right now and driving up these prices. That is number two. The administration has refused to help us.

Third, Senator Cantwell and I have called for the formation of a task force in the Justice Department to send a signal again to the markets of the seriousness to follow the law and have transparency in these markets. That is the third thing the administration has failed to do.

The fourth thing is the long-term, and what the American people understand, that all of the things we are going to talk about today are short-term. They are not permanent fixes to this problem. The permanent fix to this problem is found in groups like a couple of people I met in my office yesterday. They are the leaders of the Phoenix Motor Car Company, who are going to bring an all-electric car to market in June from Ontario, California, that you can drive on all electricity for 120 miles for $3 for 120 miles. That is the solution. The administration refused to help us move in that direction.

We have got to do all four. Thank you, Mr. Chair.

The CHAIRMAN. Great. The gentleman's time has expired.

The chair recognizes the gentleman from Connecticut, Mr. Larson.

Mr. LARSON. I want to thank the Chairman and thank the witnesses for being here this afternoon. Let me follow on with the reasoning of my esteemed colleague from Washington State. At a previous hearing, we have heard from a number of executives in the oil and gas business around this whole issue of speculation.

The independent Connecticut Petroleum Dealers Association tells heart-rendering story after story of citizens who receive their Social Security checks turning around and handing them over to them. They say that the rules of supply and demand no longer apply with respect to this issue. That, in fact, it is speculation and greed that is driving the cost up at the pump, and clearly in the area of home heating oil.

These rock-rib Republicans from my district have said that what needs to be done is that what we need to do is focus on this speculation and require that unless, in fact, you are the recipient of the commodity you would not—you shouldn't ought to be able to use the declining dollar as a way to transfer paper or continue to speculate in such a manner that it raises the cost of gas at the pump or home heating oil that is distributed to your home.

I am interested in hearing from all of you, and concur with my other colleagues' outlining of the issues that confront us.

The CHAIRMAN. Great. The gentleman's time has expired.

The chair recognizes the gentlelady from South Dakota, Ms. Herseth Sandlin.

Ms. HERSETH SANDLIN. Thank you, Mr. Chairman. Thank you for having this important hearing, and I thank our witnesses for testifying.

To reiterate some of the important points made by some of my colleagues, I represent the entire State of South Dakota, a very rural State, and so you can imagine the impact that record gas prices are having on families and businesses across the State.

While we have been one of the leaders in biofuels production, that it has had a moderating influence on the gas—price of gas, upwards of 15 percent as we have seen in some analysis that we explored with oil companies—company executives that generally agreed, although they didn't think that it was upwards of at least 15 percent that ethanol has been able to, again, moderate the price that we would see otherwise if we didn't have ethanol production today.

But I do think it is important, as we explore with our witnesses today the other impacts—I have long advocated in times of record gas prices, whether it was last year, the year before, or now, that we not continue to add oil to the Strategic Petroleum Reserve to help alleviate some of the market pressures.

But I would also like to explore with the witnesses today the impact of our domestic refining capacity, as well as how we develop a plan for the SPR in light of the projected effects of last year's energy bill and the standards that we put in and what that is projected to save us in terms of imported oil over time.

So, again, I thank the Chairman and the witnesses, and look forward to their testimony.

The CHAIRMAN. Great. The gentlelady's time has expired.

The chair recognizes the gentleman from Oregon, Mr. Blumenauer.

Mr. BLUMENAUER. Thank you, Mr. Chairman. I, too, welcome our witnesses, look forward to some thoughtful interaction.

It is important that we focus on three things, in my judgment. One is making sure that we have a transparent and fair market, look forward to exploring that. Second is being sensible about what the Federal Government itself does. It is not just the Strategic Petroleum Reserve, but how we, as the largest consumer of petroleum in the world, for our military and other actions, do the best possible job of stretching that resource.

And, finally, with the work of this Committee, look comprehensively at how we are going to deal with rebuilding and renewing this country to provide more choices to people, so they are not sen-

tenced to buy—if they want to buy a gallon of milk that they have to burn a gallon of gas, because of how we organize our communities, the limited transportation choices that people have, and how we have failed in terms of promoting more technology.

Mr. Chairman, I appreciate what you have done with this Committee, looking at the big picture, not just as we are today with one piece of it, but how all of them fit together. And I look forward to our progress in looking at that bigger picture as we go on.

Thank you.

The CHAIRMAN. I thank you. I thank the gentleman from Oregon. That completes the time for opening statements for the members of the Select Committee.

[The prepared statement of Mr. Cleaver follows:]

U.S. Representative Emanuel Cleaver, II
5th District, Missouri
Statement for the Record
House Select Committee on Energy Independence and Global Warming Hearing
"Pumping Up Prices: The Strategic Petroleum Reserve and Record Gas Prices"
Thursday, April 24, 2008

Chairman Markey, Ranking Member Sensenbrenner, other Members of the Select Committee, good morning. I would like to welcome our distinguished panel of witnesses to the hearing today.

It is no secret that gas prices in our country have been rising at a rapid and astonishing rate. Americans have been struggling with the price at the pump, while at the same time trying to juggle the cost of other daily necessities. In general, all household items have been increasingly more expensive due to several reasons including higher transportation costs and a greater expense for fuel needed to harvest food products. These factors are putting even more of a strain on hard-working Americans due to these secondary impacts.

Just two days ago, the price of oil broke yet another record, as it closed at over $119 per barrel. When you have families having to choose between buying gas and buying groceries, it has become painfully clear that the rising cost of oil and gas has become a real emergency. Many experts in the field have predicted that we will be paying $4 per gallon of gas by the summer, the peak driving season.

Today, we have the opportunity to gain information as the cause of this increase, and what can be done to ease the strain consumers feel at the pump. We must consider all factors if we will be able to achieve a solution, such as the use of viable renewable fuels, and increases in fuel efficiency. The role of the Strategic Petroleum Reserve in the demand for gas prices is also a factor we need to examine, with the aid of today's witnesses. We need to assess whether perhaps drawing resources from the Reserve would be feasible, and also effective at reducing the price of gasoline.

I thank all of our witnesses for their insight and suggestions, and I appreciate them taking the time to visit with our committee this morning.

Thank you.

Mr. CHAIRMAN. I note that we have a guest, Mr. Welch from Vermont, who is sitting in today, and we welcome you, sir, to the hearing.

Let me now turn to our first witness. Our first witness is Ms. Melanie Kenderdine. She is the Associate Director of Strategic Planning for the MIT Energy Initiative. She has had a long career as well at the Department of Energy before that.

We welcome you. Whenever you are comfortable, please begin.

STATEMENTS OF MS. MELANIE KENDERDINE, ASSOCIATE DIRECTOR, STRATEGIC PLANNING, MIT ENERGY INITIATIVE; DR. MARK COOPER, DIRECTOR OF RESEARCH, CONSUMER FEDERATION OF AMERICA; MR. DAVE BERRY, VICE PRESIDENT, CHAIRMAN, SWIFT TRANSPORTATION COMPANY, INC., AMERICAN TRUCKING ASSOCIATION; MR. KEVIN BOOK, SENIOR VICE PRESIDENT AND SENIOR ANALYST, ENERGY POLICY, OIL, AND ALTERNATIVE ENERGY, FRIEDMAN, BILLINGS, RAMSEY AND COMPANY, INC.; AND DR. FRANK RUSCO, ACTING DIRECTOR, NATURAL RESOURCES AND ENVIRONMENT, GAO

STATEMENT OF MELANIE KENDERDINE

Ms. KENDERDINE. Thank you, Mr. Chairman. Mr. Chairman, Mr. Sensenbrenner, members of the Committee, thank you for giving me the opportunity to testify today.

While the SPR is our primary line of defense in the event of an emergency oil supply disruption, each day the current RIK program pulls 70,000 barrels of oil off tight markets, at a time of record high prices and volatile geopolitics. Attention to market conditions and the willingness to act in a more flexible and creative manner could achieve the same result but enable lower cost options for filling the SPR, as well as help address other key energy priorities.

The purposes in implementation of the original RIK program in 1999 provides an example of such creativity. In late 1998, oil prices hit historic lows. While moderate oil prices are good for consumers, extremely low prices, shut-in wells, decimate the workforce, particularly in the oil-producing regions of the country, and destroy the technical infrastructure of the industry—impacts that lead to lower supplies and higher prices in the future.

To help mitigate these adverse impacts, the Clinton administration established the RIK program. This provided a market outlet for domestic oil in a glutted market and enabled DOE, without the need for new appropriations, to replace 28 million barrels of oil in the SPR that had been sold two years earlier, largely at the direction of Congress, simply to generate revenues.

The current RIK program is operating under market conditions that are precisely the opposite of those that the original program was established to exploit. In fact, two energy secretaries, in both Democratic and Republican administrations, elected to pursue the path of do no harm with the RIK program. Secretary Richardson in 2000 and Secretary Abraham in 2003 deferred deliveries under the RIK program for fear that removing even small amounts of oil from the market would increase prices to consumers.

Another authority where creativity and flexibility can and should be employed is exchanging oil to acquire oil. We first used this in a significant way to establish a home heating oil reserve in the Northeast in 2000. Chairman Markey was a major supporter of that effort. The rapid stand-up of this reserve, absent appropriations to do so, was accomplished by using this authority and cost us no money.

We also conducted a time exchange of oil in September of 2000 when heating oil inventories in New England were 72 percent lower than in the previous winter. On September 22nd that year, the President directed the Secretary to conduct a time exchange of SPR oil, in effect loaning the market 30 million barrels of oil.

The results were immediate. Spot prices dropped by almost 20 percent. By the end of the year, actual oil prices had decreased by 34 percent, and there was adequate heating oil supplies for the winter. Importantly, this exchange of 30 million barrels of oil ultimately returned over 35 to the Reserve, or a 17 percent interest payment on that loan. At today's prices, this equates to an additional half billion dollars of oil in the Reserve at no cost to the taxpayer.

The energy bill passed last December established the foundation for alternative energy security pathways. Conservative estimates are that by 2022 provisions in that law will reduce net oil imports by well over two million barrels per day, in effect increasing the insurance value of the SPR without adding any additional oil to the Reserve.

Between now and then, however, we have to meet what I call the 80/80/40 challenge—replacing current—the current 80 percent fossil fuel consumption with 80 percent carbon-free or carbon light energy, renewable energy, and sequestration, to avoid the doubling of CO_2 emissions in approximately 40 years. That 40 years also roughly equates to the time it will take us to turn over the energy infrastructure.

Replacement cost of that infrastructure is estimated to be $12 trillion. To do this, we will need to find new ways to finance key energy technologies and research. Total energy R&D investment in both the U.S.—in the U.S., both public and private, is estimated to be around $5 to $6 billion a year. And, according to GAO, DOE's total budget authority for energy R&D has dropped by over 85 percent since 1978.

I offer, without advocating, three options for your consideration. First, an outright sale of 40 million barrels of oil from the SPR would generate around $4.5 billion in new revenues. That could help pay, for example, Congressman Inslee's Apollo project.

This would have the added benefit of lowering prices to consumers. Notwithstanding attacks that this would diminish our energy security, I note that this would reduce the amount of oil in the SPR to around 660 million barrels, roughly 60 million barrels more than was in the Reserve when we went to war in Iraq. Presumably, that was deemed sufficient to go to war in the Middle East.

Or, second, temporarily suspend the current RIK program, and forcing the sale of that oil into the open market could provide at least a billion new dollars to fund key energy research programs.

And, finally, exchanging 50 million barrels of sweet crude in the Reserve for heavy oil in the open market, if done correctly, could net roughly $500 million without reducing the overall volume of the Reserve by a single barrel.

This, combined with the roughly $590 million currently in the SPR account, would also provide an additional billion dollars for energy research at no cost to the taxpayer.

The CHAIRMAN. If you could please summarize.

Ms. KENDERDINE. Yes. In closing, sir, the current policy of taking royalty oil in a continuous flow, regardless of market signals, ignores many of these lessons. It is a waste of taxpayer dollars to put oil in the Reserve at today's prices when futures markets offer the same oil at a lower price 12 months from now.

Thank you very much.

[The prepared statement of Ms. Kenderdine follows:]

Testimony of Melanie A. Kenderdine
before the U.S. House of Representatives Select Committee on
Energy Independence and Global Warming
April 24, 2008

Mr. Chairman, Mr. Sensenbrenner, Members of the Committee, thank you for giving me the opportunity to testify before your committee today. Let me start by noting that I am here as the Associate Director of the MIT Energy Initiative, but in the tradition of academic freedom, the views I express today are my own. In addition to my current position at MIT, I worked at the Department of Energy from 1993 through 2001. During that time, I was the Director of the Office of Policy as well as the Senior Policy Advisor on Oil, Gas and Coal to Secretary Richardson; policy aspects of the SPR were included in my portfolio.

I have been asked to address policy issues related to the Strategic Petroleum Reserve and specifically to discuss issues surrounding the Administration's current policy to fill the Strategic Petroleum Reserve utilizing the so-called Royalty-in-Kind or "RIK" program. This program provides a mechanism for the federal government to accept oil in lieu of federal royalty payments for industry oil production from federal lands.

Authorities for Uses of the SPR

The SPR is our primary line of defense in the event of emergency oil supply disruptions. It also provides the U.S. with additional energy security assets over and above this essential function that can be utilized to support other energy policy objectives.

In general, the legal authorities for the use of the SPR include but are not limited to:

- Drawdown in the event of an emergency supply disruption, amount unlimited, Presidential finding required
- Drawdown in anticipation of a supply disruption, 30 million barrels limitation, Presidential finding required
- Test sale, five million barrel limitation, discretionary on the part of the Secretary
- An "exchange of oil to acquire oil", discretionary on the part of the Secretary
- A royalty-in-kind exchange program, administrative action
- Leasing space in the Reserve, administrative action

I highlight these authorities for three reasons.

First, it has been widely represented in the press and public domain that the SPR is to be used *only* in the event of an emergency supply disruption. It is worth repeating here today that this is *not* the case, as demonstrated by this listing of authorities. This misconception has caused us to undervalue a very powerful tool and to inhibit management flexibility that could maximize the value of the SPR to achieve energy and foreign policy objectives.

Second, each of these authorities was either extensively debated or utilized to support broader policy objectives when I was at DOE, and highlights the spectrum of SPR policy options that may be employed under certain oil market or security conditions.

Third, and equally important, these authorities create opportunities for Congress as it seeks to satisfy and balance competing energy policy priorities going forward.

Today's Oil Markets vs. Oil Markets in 1973

To fully appreciate this range of possible uses of the SPR, it is important to recognize the significant changes in oil markets since the time of the establishment of the Reserve.

- *Oil markets have become more efficient.* In 1973, the Nixon Administration had, since 1971, placed US crude and refined products under price and allocation controls. Markets were inefficient and uncertain, leading refiners to hold greater working stocks to meet demand. Today, markets are deregulated and market forces are deemed most appropriate for managing scarcity and risk. Oil supplies are more diversified, robust futures markets have evolved, and inventories are more tightly managed.

- *The energy efficiency of the economy has improved.* Oil intensity (unit of oil per unit of GDP) was relatively high when the SPR was established, but has improved significantly. In 1973, we used 1.45 barrels for each $1000 of GDP and now use 0.67 barrels for each $1000 of GDP – down 54% in 33 years.

- *Oil consuming nations have built collective measures to address energy security.* The formation of the International Energy Agency (IEA) led to the establishment of information collection and policy coordination mechanisms to collectively act on oil matters including a mechanism for a coordinated response to supply disruptions, and the establishment of large strategic reserves, both public and private.

In short, today's robust global oil markets and vehicles for collective action did not exist when the SPR and the authorities for its use were established. One could reasonably argue – and many do -- that in today's markets, in which product and crude moves around the globe, and where markets manage price through scarcity and risk through market instruments, there are no true physical disruptions of oil, just price volatility in response to market conditions, resultant arbitrage, and transaction costs. To illustrate this point, after Hurricane Katrina devastated offshore production facilities, the Director of the Congressional Budget Office noted that "... if rationing is done through the price mechanism alone—energy use will tend to be put to its highest-value uses, and economic activity will not be seriously affected." (see letter from Holtz Eakin to Senate Marjority Leader Frist, September 6, 2005).

Indeed, the federal government has relied on such market forces to accommodate very large supply disruptions in the recent past. Two of the largest disruptions since the Arab Oil Embargo of 1973 -- the Venezuelan labor strike of 2002-2003, and the first year of the second Iraq war -- resulted in sequential losses starting in December 2002 of 2.6 million barrels per day, followed immediately by a gross peak loss of 2.3 million barrels per day and sustained losses for the remainder of 2003 (See IEA Fact Sheet, DOE Office of Fossil Energy Website). In neither instance did the U.S utilize the SPR to minimize the impacts of these major shortfalls.

What Are the Triggers for use of the SPR?

Historical experience shows that the trigger for using the SPR – based on the definition of what constitutes an emergency supply disruption – has been inconsistently interpreted and used. As noted, a peak loss of 2.3 million barrels of oil per day and a sustained loss of around a million barrels per day for almost a year after the start of the Iraq war in 2003 was deemed an insufficient disruption to trigger the use of the SPR.

Compare this to the response to Hurricane Katrina. According to the Minerals Management Service (MMS), Gulf of Mexico (GOM) oil production was reduced by a relatively modest 837,648 barrels per day, less than half the shortfall of the Iraq war. In this instance however, the President made an emergency finding and the Department of Energy announced an offer to sell 30 million barrels of SPR oil.

Not all oil offered for sale in response to Katrina, however, was actually purchased (only 11 million of the 30 million that was offered) – a clear signal from the market that it did not need the crude oil the SPR was offering. Instead, what was needed was refined product as Katrina was much more devastating to refineries in the Gulf than to regional crude production. The U.S. energy markets were, however, able to essentially swap crude oil for European product, a transaction that hinged on the emergency declaration by the President.

The structure and nature of the Katrina response raises two concerns beyond that of consistent use of triggers for release of oil from the Reserve: the need to revisit the issue of product reserves as originally envisioned in the SPR organic statutes; and the requirements for an emergency declaration by the President. In this circumstance such a declaration was required to effect what was essentially a swap. More response flexibility on the part of

the Secretary could expedite actions and help diminish the counter-productive market psychology reactions that come with Presidential emergency declarations.

SPR Drawdown Capacity Limits Response

It is also important to understand the impacts of key operational features of the SPR as we consider the current RIK program to fill the Reserve. The SPR has a capacity of 727 million barrels of oil and currently holds around 701 million barrels. The DOE recently awarded three contracts to add an additional 17 million barrels of oil to the Reserve through the RIK program.

While the total number of barrels in the SPR or "days of import protection" is the gauge by which the public and policy makers typically measure the amount of import insurance the SPR provides the nation, an additional and critical data point for our emergency response capability is the SPR's *drawdown* capacity. This is currently around 4.4 million barrels per day (an untested number as the systems and commercial interfaces have not been stressed at a rate higher than one million bpd for a sustained period). Because drawdown capacity is fixed, at a certain point, total capacity or "days of import protection" becomes less important as the size of the SPR increases, because drawdown capacity is the limiting factor in our ability to respond to disruptions.

One could argue that in spite of the *drawdown* rate, larger *volumes* in the SPR could enable us to respond to disruptions over greater lengths of time. However, the incremental benefits are smaller because history demonstrates that we are not inclined to authorize a drawdown over long periods of time. Also, the Reserve can only maintain a drawdown rate of 4.4 mbpd for 90 days. After that the rate of production declines precipitously and the SPR inventory will be exhausted within 180 days whether the inventory is 700 million barrels or 727 million barrels.

Requirements for Strategic Oil Stocks

The current case for filling the Reserve utilizing the RIK program, in spite of record high oil prices, hinges in part on the assertion that current capacity offers only 57 days of import protection, when the U.S is required to have 90 days of import protection as a participant in the International Energy Agency. However, the IEA 90-day requirement is based on total level of strategic stocks, including both government-owned reserves as well as privately-held stocks available for use in an emergency. Other IEA countries rely on privately-owned stocks, under varying degrees of government control, to meet some or all of their respective commitments. Indeed, the DOE SPR website indicates that the current U.S. inventory equates to 118 days of import protection as defined by the IEA. These volumes are reported to IEA on a regular basis and IEA periodically reviews them; presumably the 118 day figure on the DOE website reflects this process as well as official U.S. representations to the IEA.

The Administration is also responding to EPACT 2005 which directs that the Reserve be expanded and filled to a capacity of one billion barrels. In this regard however, the statute provides DOE with significant latitude in the timing and manner in which this requirement is met. There are strong supporters for such an expansion, particularly for expanding its storage capacity, myself included. There are however many available tools to achieve this end in ways that avoid potential and real adverse impacts on American consumers.

The analysis supporting the DOE Environmental Impact Statement for proposed expansion of the SPR to one billion barrels was conducted prior to the passage of key energy laws which would both increase unconventional domestic oil supplies and reduce oil demand in the future. These new policy tools could have a material impact on the need for SPR expansion or, at a minimum, both the manner and rate at which this expansion occurs.

A Range of Uses of the SPR

I would also like to briefly discuss four actions that utilized the SPR during my tenure at DOE with relevance to today's hearing. These are: the Congressionally-directed sale of $420 million worth of SPR oil in fiscal years 1996-97; the related development and implementation of the original RIK program in 1999; the creation of the

Home Heating Oil Reserve in the Northeastern US and; the exchange of 30 million barrels of SPR oil in September of 2000.

- *Directed sales of SPR Oil.* In appropriations bills in 1996, the Congress directed the sale of $420 million worth of SPR oil in the absence of any market anomaly, disruption or product shortfall; the sole purpose of the directed sales was to generate revenues for purposes not related to energy security. Around 23 million barrels of SPR oil were sold to meet the statutory direction and requirements to sell the oil within a fixed timeframe; as such, SPR managers were constrained in their efforts to get the best value for the taxpayer.

  In that same timeframe, the Weeks Island SPR storage facility showed signs of potential failure and needed to be decommissioned. This occurred after the Administration's budget for the fiscal year was set. To avoid a catastrophic failure of the facility which would have compromised the oil in the cavern and caused environmental harm, the department proposed and the Congress authorized DOE to sell five million barrels of oil to pay for this decommissioning. The combined total of SPR oil sold during calendar year 1996 was around 28 million barrels.

  In addition, in 1997 as part of the appropriation for FY 1998 Congress directed additional sales for the purpose of generating revenue, although this action was effectively overturned (see below).

- *Use of the RIK Program to Prevent Shut-in of Domestic Production.* In late 1998, oil prices hit historic lows, with WTI bottoming out at $8.73 per barrel. The Economist Magazine's cover headline at that time was "$5 Oil Forever?"

  Lower oil prices are good for consumers and the global economy. However prices at extremely low levels such as those in late 1998 force wells to be shut in, discourage necessary investment in research, exploration and production, decimate the workforce and destroy the technical infrastructure of the industry -- impacts that ultimately lead to lower supplies/higher prices in the future. Such impacts were strongly felt in producing regions of the country -- Texas, New Mexico, Louisiana, Alaska, Colorado, Wyoming, etc.

  Congress responded by passing an emergency appropriation act allowing the Department of Energy to stop oil sales from the SPR that had been directed in the FY 1998 appropriations bill, if the President found that the situation was an emergency. President Clinton made the requisite finding and the sale of oil for FY 1998 was cancelled.

  More proactively, the Administration activated the transfer authorities for DOE to take oil owed to the Department of the Interior as royalty from Federal leases. The establishment and implementation of the RIK program in 1999 served two purposes: it provided a market outlet for domestic oil in a global market that was glutted; and it enabled DOE, without the need for new appropriations, to replace the 28 million barrels of oil in the SPR that had been sold two years earlier. At the time of the announcement, the SPR held 561 million barrels of oil; when the RIK exchange was completed, the SPR would have contained around 590 million.

  Direct quotes from the key policy makers at the time of the announcement bear repeating [see DOE press release, January 11, 1999]:

  - Then Energy Secretary Bill Richardson: "*We are taking advantage of today's low oil prices to re-build our strategic oil reserves*...By putting royalty oil in the Strategic Petroleum Reserve today we will get a high rate of return tomorrow - enhanced national energy security, increased strategic assets -- and a very good deal for the American taxpayer." [emphasis added]

  - Then Senate Energy Committee Chairman, Frank Murkowski: "...Buying oil back into the SPR is a win-win-win. It would bolster America's energy security, *it would draw down oil from a*

glutted world market and it would benefit the country's small domestic producers." [emphasis added]

- Senator Bingaman, then-ranking member of the Senate Energy Committee: "*With oil prices at an all-time low, now is the time* to strengthen our national energy security by replacing the oil we've drained from the Strategic Petroleum Reserve." [emphasis added]

Each of these key policymakers emphasized -- in addition to the positive security implications of the program – that a key driver for this program *was taking advantage of low oil prices to get the best deal for the taxpayer* or taking oil off a glutted market, presumably to have some price impact. The major oil trade associations similarly applauded the action as a way to lower the glut of oil on world markets and assist the industry at a time when it was reeling from historically low prices. Current efforts to fill the SPR with RIK oil are occurring under market conditions that ensure the opposite result of the program as it was originally envisioned.

It is also important to note here that Secretary Richardson directed the SPR office to defer deliveries to the SPR under the RIK program when prices started to rise sharply. His motivation was concern that pulling even small amounts of oil off the market (at that time, about 100,000 barrels per day) would increase consumer prices.

- *Establishment of a Home Heating Oil Reserve.* The winter of 1999-2000 was mild until a late cold snap placed huge demand on heating oil supplies in the Northeast and New England. The EIA Administrator warned that without a break in the weather the region would run out of heating oil. DOE began daily monitoring calls with the requisite state officials and reviewed curtailment options but beyond this, had very few tools at its disposal to address this potential crisis. Fortunately, the weather broke and the significant heating oil price spike in the U.S. attracted supplies from Europe, which arrived in time to avoid a crisis.

  This vulnerability of the region to supply shortages prompted calls from elected officials and some within the Administration to establish a regional heating oil reserve. The White House ultimately sided with these officials and ordered the creation of the Northeast Heating Oil Reserve in the summer of 2000. The rapid stand-up of this reserve, absent appropriations to do so, was accomplished by using the authorities that allow DOE to "exchange oil to acquire oil."

  I highlight this action for two reasons: first to demonstrate some of the energy policy objectives that can be met through creative application of SPR authorities. Second, it underscores the possible need for additional product reserves. When the SPR was authorized, it contemplated the possibility of product as well as crude oil reserves. At the time of the SPR's first plan, it was determined that product reserves were too expensive, there was a robust refining industry and significant product stocks, and that the real need was for a crude oil reserve. Since that time, the refining industry in the US has operated at a much higher utilization rate, just-in-time inventory practices eschew the holding of product inventories, and imports of refined product have increased fairly dramatically. Product reserves present a range of difficulties as product does not store over time and must be swapped out on are regular basis. As we consider SPR expansion however, it might be worth studying the inclusion of strategically located product reserves as part of any SPR expansion plan.

- *Use of an SPR Time Exchange in September, 2000.* As noted, heating oil inventories were a major concern throughout 2000 and were closely monitored by the federal government. Notwithstanding political charges made prior to the Presidential election in November, a range of options had been discussed within the Administration as early as April of that year.

  While the new heating oil component of the SPR gave the country more emergency stocks in the fall of 2000, commercial inventories of heating oil were still dangerously low. In August, 2000, heating oil inventories in the Northeast Region were around 40% lower than the previous winter (when we faced the prospect of running out); in the New England sub-region, they were 72% lower. In addition, oil

prices were increasing in spite of OPEC's actual or announced production increases of almost three million barrels since March of that year.

After a review of all options, consultation with IEA and other allies, and a determination that refining capacity was sufficient to accommodate additional oil, on September 22nd the President directed Secretary Richardson to utilize SPR exchange authorities to conduct an exchange of SPR oil, in effect loaning the market 30 million barrels of oil, with the potential for loaning an additional 30 million.

The results were immediate, in spite of the fact that oil had not yet moved into the market (demonstrating the psychological impacts on the market when the U.S. signals its intention to act). All of the oil was refined in spite of charges that there was insufficient refining capacity; there were adequate heating oil supplies for the winter. In addition, the exchange backed out cargoes on their way from Europe to the US, in effect, reducing pressure on overheated markets and prices on both sides of the Atlantic. In this regard, oil spot prices dropped almost 20%, from $37.22 to $30.26 a week later. Prices stayed down until the bombing of the Cole on October 12. By the end of the year, actual oil prices had dropped from $30.94 to $20.38 per barrel, a **34%** decrease.

Importantly, as we discuss using SPR authorities to increase the size of the Reserve, the 2000 exchange of 30 million barrels of oil loaned to the market ultimately resulted in a return to the reserve of 35.1 million barrels (after the original 1.35 million barrel premium from the exchange, a series of contract deferrals ultimately brought the total to 5.1 million). This, in effect, represented a 17% interest payment on the loan and, at today's prices, equates to an additional half billion dollars of oil in the Reserve at no cost to the taxpayer.

It is also worth noting that the deferrals involved in this transaction took place over several years; the 2000 time exchange was not completed until 2004. In fact, contract deferrals for SPR oil are common practice. The SPR website notes that:

> "On several occasions, the Energy Department has agreed to reschedule incoming oil shipments to the Reserve at the request of contractors, deferring the deliveries for several months to a year or more. In these instances, companies under contract to deliver crude oil to the Federal Government agree to increase the volume of oil delivered to the Reserve at the later date at no additional cost to the taxpayer. The additional volumes, or premium barrels, are similar to interest payments."

Impacts of Current RIK Program

The current RIK program is pulling 70,000 barrels per day off oil markets at a time of record high prices, very tight supply/demand balances, and high geopolitical volatility. Attention to market conditions and the willingness to act in a more flexible and creative manner could afford lower cost options for SPR fill through time exchanges and other measures. Moreover, as I noted earlier in my statement, the current RIK program provides very little incremental insurance value.

I offer several sources of information, anecdotal evidence, and past Secretarial actions for the Committee's consideration.

- The 2000 time exchange is instructive in this regard. While it involved putting oil *on* the market as opposed to taking oil *off* the market, it demonstrated how a very small amount of oil compared to world market totals (30 million barrels into an annual oil market approaching three billion barrels) could have a major impact on price.
- This point was also driven home by Alan Greenspan's testimony before the Senate Finance Committee a year ago in which he noted that: "...the balance of world oil supply and demand has become so precarious that even small acts of sabotage or local insurrection have a significant impact on oil prices."

- When oil prices topped $100 dollars per barrel for the first time, the New York Times article on February 20, 2008, noted from its discussions with traders that "The immediate cause that sent prices up today was the fire at a Texas refinery ... [which] will halt processing of about 70,000 barrels per day for several weeks at least."

- The same trade associations that strongly supported the initial RIK program, (a type of exchange) which removed oil from the market when prices were at historic lows, opposed the 2000 exchange which put oil onto the market when prices were relatively high.

- Phillip K Verleger, a well-known petroleum economist, cited Goldman Sachs in testimony on the impacts of the RIK program from 2001-2004, noting that:

> ".....Goldman Sachs economists made the following statement: Government storage builds have lowered commercially available petroleum supplies. OECD strategic petroleum reserves built in excess of 51 mmb during 2003 (40 mmb in the United States alone), which reduced commercially available supplies by the same amount and lowered the inventory coverage ratio. We estimate that these builds alone have supported crude oil prices by $2.25/bbl."

While respected analysts disagree with some of these conclusions, two Energy Secretaries in Democratic and Republican Administrations elected to pursue the path of "do no harm" when confronted with increasing oil prices and an active RIK program. Both Secretary Richardson in 2000 and Secretary Abraham in 2003 chose the path of prudence and deferred deliveries under the RIK program for fear that removing even small amounts of oil from the market would increase prices to consumers.

Future SPR Policy Issues and Options

Expanding the size of the SPR, while an important undertaking, is a very expensive proposition. The current DOE program threatens to place additional and unnecessary burdens on consumers, who are already weighted down by historically high energy prices. The use of RIK oil to fill the Reserve in the current environment calls into question many issues about the SPR, including:

- *Inconsistent Past Practices on SPR Use:* Confusion exists about the size and duration of a given disruption that triggers emergency disruption responses and authorities, raising questions about the need for expansion, certainly about the *urgency* of the need. Clarification of the policy underpinnings for the rapid expansion of the SPR currently being pursued by the Administration is warranted, when the law directing it to do so provides significant latitude in this regard, and triggers for the use of the Reserve are inconsistently applied.

- *The Rate vs. the Length of Drawdown:* The practical as well as security impacts of limited drawdown capacity, its relationship to IEA requirements, and the need for additional import protection are not well understood or appreciated. Is the development of additional drawdown capacity (beyond expected demand increases) an investment worth pursuing?

- *Petroleum Product vs. Crude Oil Reserves:* We have significant evidence of product as opposed to crude disruptions and shortages, as seen in both Katrina and the run-up to the exchange in 2000. Are there changing refining market/industry conditions including increased product imports that point to the need to re-visit and study product reserves as part of any contemplated expansion of the Reserve?

- *Better Leveraging of the SPR as an Asset to Support Energy Policy Objectives:* There appears to be a need for greater Secretarial authority and flexibility to use the SPR in ways that enhance the value of the SPR while minimizing market impacts, taxpayer costs, and consumer burdens. Also, are there reasonable uses of the Reserve that should not require emergency declarations and, if so, do authorities need to be revised?

Related to the last point, GAO convened a group of policy experts to analyze the size and uses of the SPR, including fill policy and made a series of recommendations on SPR size and fill; many of these bear repeating. Specific to RIK, they indicated that the current "steady volume approach of the RIK program" has effectively cost the taxpayer an additional $590 million for the same amount of oil. They recommended instead that we "fill the SPR more cost-effectively, including acquiring a steady *dollar* value of oil for the SPR over the long term, rather than a steady *volume*, to ensure a greater volume of fill when prices are low and a lesser volume of fill when prices are high." In essence, the GAO is suggesting that application of a "dollar cost averaging" investment philosophy would increase its longer-term value to consumers [See GAO Report 06-872].

They also suggested greater flexibility in the RIK program, giving industry the ability to delay deliveries in tight, backwardated markets (backwardation is the condition under which the price of future deliveries for the commodity is below the price for present (or spot) deliveries. Especially relevant to many of the issues raised in this testimony, they recommend that we "periodically reassess the appropriate size of the SPR in light of changing oil supply and demand in the United States and the world."

Reassessing the Value of Additional SPR Insurance in a Changing Energy Future

This takes me to my closing points. Policy and research leaders are increasingly faced with the need to balance competing energy concerns: the need for energy security that comes, in part through the insurance provided by the SPR; as well as providing for an energy future in which such insurance will no longer be required (or required to a lesser degree).

Specifically, the Energy Independence and Security Act of 2007 established the foundation for alternative energy security pathways. Indeed, the Renewable Fuels Standard and new CAFÉ requirements have the potential to significantly reduce oil imports, in effect reducing pressures on the SPR as the only option for ensuring oil security. Conservative estimates provided by the Secure America's Energy Coalition show that this new law would reduce net oil imports by 1.75 million barrels per day by 2020, increasing to 2.26 million barrels per day in 2022 and rising thereafter. These estimates represent roughly half of the theoretical SPR drawdown capacity of 4.4 million barrels per day. They also increase the number of days of protection afforded by a given quantity of oil in the Reserve. Thus, the new Energy bill could, over time, increase the insurance value of the SPR, even if the actual inventory level is frozen or slightly decreased.

We also need new ways to finance the research, development and demonstration of key technologies to enhance our energy security and sustainability and mitigate the impacts of climate change. The GAO has documented that DOE's total budget authority for energy R&D dropped by over 85 percent (in real terms) from 1978 to 2005. While Congress continues to authorize new and expanded critical energy research programs, it is apparent that the current Administration will not pay for these programs, and has opposed efforts by Congress in the last appropriations cycle to increase energy R&D investment levels.

As I noted earlier, the Congress has to balance the energy security interests met by the SPR against other equally compelling energy imperatives. I am not here today as an advocate of the options I will outline below. I would note again however that the policies that guide how we manage the SPR were essentially established in the late 1970s and have little relevance to today's global oil markets. I would like to provide the members with some food for thought as to how some creative management of the SPR could take advantage of these markets and enable a range of longer term energy options that could ultimately eliminate the need for an SPR. I urge the members to consider the following:

- An outright sale of 40 million barrels of oil from the SPR would generate almost $4.5 billion in new revenues, sufficient to pay for much of Congressman Inslee's so-called Apollo Project for example. This would have the added benefit of lowering prices to consumers. For those who say we would diminish our energy security by so doing, I would point out that this would reduce the amount of oil in the SPR to around 660 million barrels, roughly 60 million barrels *more* than was in the Reserve when we invaded Iraq when, presumably, this level of oil insurance was deemed sufficient to protect our energy security interests during a war in the Middle East.

- Simply suspending the current RIK program in ways that result in a positive budget score could provide a new source of funding of at least a billion dollars for key research programs such as carbon sequestration demonstrations or efficiency programs that have strong policy, analytical and bi-partisan support.

- Finally, exchanging 50 million barrels of light sweet crude in the Reserve for heavy oil in the open market, if done correctly, would net $500 million without reducing the overall volume of the Reserve. This, combined with the roughly $550 million in the Petroleum Account from the sale of oil during Katrina, would also provide an additional $1 billion for energy research at no cost to the taxpayer.

Each of these options, if exercised, could be expected to temporarily drive down oil prices without appreciably reducing the insurance value of the SPR in the near term. Their long term and lasting value, however, would be in generating the critical energy research revenues we need to make the SPR a quaint anachronism.

In short, we need a clearer articulation of the value of a larger SPR relative to other policy options such as increased efficiency or the introduction of alternative fuels that would reduce oil consumption. I hope that this testimony has provided some food for thought about SPR management and look forward to the Committee's questions.

Thank you.

The CHAIRMAN. Thank you. We very much appreciate that.

Our next witness, Dr. Mark Cooper, is the Director of Research at the Consumer Federation of America, and has testified many times on these subjects before Congress.

Welcome, Dr. Cooper.

STATEMENT OF MARK COOPER

Mr. COOPER. Thank you, Mr. Chairman. I appreciate the opportunity to testify on this important issue.

We estimate that over the past six years household expenditures on gasoline and motor oil have more than doubled, rising by over $1,200. In a recent national poll earlier this month, we found that 73 percent of respondents are greatly concerned about rising gasoline prices, and 60 percent are greatly concerned about Mideast imports. Thus, the pocketbook and national security implications of our oil addiction, which are the subject of this hearing, are top of mind for consumers.

Our research shows that current high gasoline and oil prices are the result of a long-term combination of an international crude oil cartel and a tight domestic refining oligopoly, both of which have systematically underinvested in production capacity. By failing to expand production capacity to meet demand and provide a reasonable reserve in an industry with very low elasticities of supply and demand, and that is prone to accidents and disruptions, they have created tight and volatile markets from which they profit.

While crude oil is the largest component of gasoline costs, there have been months over the past five years when the domestic spread, the amount that domestic refiners and marketers take at the pump, has been over $1 per gallon. That is domestic $1.

Moreover, the tug of war between OPEC and the domestic refining industry over the extraction of consumer surplus has pushed up prices. The U.S. gasoline market accounts for about one-quarter of all the gasoline consumed in the world and is by far the largest single product market in the oil sector. As U.S. refining margins increase, OPEC receives the signal that the market will support higher prices, and, as a rent-seeking cartel, pushes crude prices up, so that they get their share of the available rents. So crude oil pushes gasoline prices up, and U.S. gasoline prices pull crude oil up in a vicious anti-consumer spiral.

Speculation has also played an increasing role in driving up the price of crude oil and gasoline, as huge influxes of money increase volume, volatility, and risk in those financial markets. A couple of years ago, the Senate Committee on Oversight Investigations concluded that speculation accounted for one-third of the oil price. That is something like $38, not too far off what the oil executives told you a few weeks ago.

In a well-functioning market, steadily growing demand, which we have had in the world, does not cause this powerful surge of prices or this huge increase in volatility. It is the failure on the supply side to invest, the concentration we allow to afflict the domestic refining industry, and barriers to entry that have allowed the cartel and the oligopoly to profit at the expense of the public with speculators driving the process forward.

At best, our strategic petroleum policy does us little good. At worst, the failure to have a comprehensive policy makes matters worse. We refused to fill the Reserve in the 1990s when oil was $10 a barrel, and we refuse to stop filling it when oil is $110 a barrel. That adds insult to injury.

I don't believe that SPR fill or drawdown will have a significant impact on prices in the long term. However, in the short term, under certain circumstances, fill and drawdown can in fact affect the speculative bubbles or short-term disruptions.

Unfortunately, at its current size, the SPR is not a very credible source to execute those policies. We don't have enough to credibly threaten the markets over a significant period of time. Size matters when it comes to the strategic stockpiles.

Since 1990, our stocks of crude oil have declined by 40 percent from 200 days of net imports to 100 days. On a percentage basis, our gasoline inventories have declined even more than that. Does anyone in this room believe that the world oil market has become 40 percent more secure in the last two decades? Not at all. Moreover, we do not have strategic refineries or a strategic product reserve when in fact refinery capacity and extremely tight gasoline inventories have been important causes of price increases over the past six years.

The long-term solution to our oil addiction lies in reducing our consumption and increasing the supply of alternative transportation fuels. Congress took a big step in that direction with the Energy Independence and Security Act of 2007. But even if every goal in that Act is achieved, in 2022 we will still be consuming over 20 million barrels and importing over 10 million barrels. We will still have a major national oil security problem and need a more effective strategic policy.

Strategic petroleum policy needs to be dramatically improved in three areas. Expand the crude reserve so we can use it as an economic weapon. It is too small. We treat it as a pure military strategy reserve. Second of all, we should create a refinery reserve, because the oil companies have made it clear they will not build enough capacity in the U.S. to meet our needs. And, third, we need to build product reserves through a mix of public stockpiles and mandatory private reserves, which many European nations have.

Thank you.

[The prepared statement of Mr. Cooper follows:]

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Statement of Dr. Mark Cooper
Director of Research

On

Pumping up Prices: The Strategic Petroleum Reserve and Record Gas Prices

Before the

Select Subcommittee on Energy Independence and Global Warming
United States House of Representative

April 24, 2008

Mr. Chairman and Members of the Committee,

My name is Dr. Mark Cooper. I am Director of Research at the Consumer Federation of America.[1] I greatly appreciate the opportunity to testify yet again on the problem of rising gasoline prices. I commend the committee for examining this important issue from a somewhat different perspective. We estimate that over the past six years household expenditures on gasoline and motor oil have doubled, rising by more than $1200. In a national poll we conducted earlier this month we found that 73 percent of respondent are greatly concerned about rising gasoline prices and 60 percent of respondents are greatly concerned bout mid-East imports. Thus, the pocketbook and national security implications of our nation's "addiction to oil" are "top of mind for consumers."

The Committee has posed four questions as the framework for this hearing and I will answer them in order. The answer to the first question is lengthy, since it provides the context for the answers to the subsequent questions.

[1] The Consumer Federation of America is an advocacy, research, education and service organization established in 1968. CFA has as its members some 300 nonprofit organizations from throughout the nation with a combined membership exceeding 50 million people. As an advocacy group, CFA works to advance pro-consumer policy on a variety of issues before Congress, the White House, federal and state regulatory agencies, state legislatures, and the courts.

1. What is driving escalating gas and oil Prices? How high might prices climb during the summer driving season?

Current high gas and oil prices are the result of a long term combination of an international crude oil cartel and a tight domestic refining oligopoly both of which have systematically under-invested in production capacity. By failing to expand production capacity to meet demand and provide a reasonable reserve in an industry with very low supply and demand elasticities that is prone to accidents and disruptions, the markets became tight and volatile. It is certainly true that tight global crude oil markets push up the price of gasoline, but it is also true that tight refinery market in the U.S. also pushes up the price of gasoline and, even pulls up the price of crude. These two domestic effects do not receive a great deal of attention. But they are important.

While crude oil is the largest component of the cost of gasoline, there have been months over the past five years when the domestic spread (the amount the domestic and refining account for in the pump price) has been over $1 gallon (see Attachment 1).

The tug of war between OPEC and the domestic refining industry over the extraction of consumer surplus has become so blatant that even *Wall Street Journal* and the Energy Information administration have commented on it. The U.S. gasoline market accounts for about one quarter of all the gasoline consumed in the world and one-eighth of the entire refined petroleum product. Thus, it is by far the single largest product market in the oil sector. As gasoline prices rise, OPEC receives the signal that the market will support higher prices. As refiner margins rise, OPEC, which is a rent seeking cartel, pushes for higher crude prices to recapture 'its' share of the available rents.

Things have gotten so bad in the U.S. gasoline market that even the Energy Information Administration, in one of its weekly reports recognized that the tight U.S. gasoline market may be "pulling up" the price of crude. "In other words, if U.S. gasoline markets are tight, they may 'pull up' crude oil prices to a degree, given that tight downstream capacity makes each gallon of product produced that much more valuable, increasing the value of the crude used to produce the refined product."[2]

A *Wall Street Journal* story made a similar point.

> Two years ago when gasoline prices in the U.S. surged to the then-lofty level of $2 a gallon, the Organization of Petroleum Exporting Countries sprang into action, seeking to provide relief by pledging to boost oil production.
>
> Now with gasoline topping an average of $3.20 a gallon nationwide, OPEC officials say they see no reason to open the oil spigot.

[2] Energy Information Administration, *This Week in Petroleum*, May 3, 2006, p. 2

> OPEC's new attitude reflects a tug of war in the global oil patch over how the profits from a barrel of oil are divided up between the world's producers – which develop oil deposits and pump oil and its refiners – who process it into fuels like gasoline.
>
> In recent years, the balance in the world's oil-supply system has shifted, giving the refining industry more power and more profit...
>
> Privately, OPEC members are irked that U.S. refining margins – the profit refiners make in turning crude into gasoline and other products – have soared in recent months...
>
> OPEC officials say that if they pump more oil and depress world oil prices, U.S. gasoline prices might remain high, and the result would be even wider refining margins. In essence, OPEC would be putting more money into the pockets of refiners while its own revenue would be hurt by declining crude prices.[3]

OPEC's response to rising crude oil prices continues to be to point the finger back at the consuming nations. "Chakib Kheilil, the president of the global cartel, who is also the Algerian Energy Minister, said: "There are big pressures on OPEC and some consuming nations would like to present OPEC as being behind current high prices. But the truth is the current prices are linked to US economic problems as well as to the value of the dollar."[4]

Speculation has also played an increasing role in driving up the price of crude oil and gasoline. On April 29, 2006, the *New York Times* ran a front-page article under the headline "Trading Frenzy Adds to Jump in Price of Oil."[5] The *Times* article opens with a brief paragraph on the conditions in the physical market but then devotes about 36 column inches to the proposition that financial markets are adding to the price increase.

> "A global economic boom, sharply higher demand, extraordinarily tight supplies and domestic instability in many of the world's top oil-producing countries – in that environment higher oil prices were inevitable.
>
> But crude oil is not merely a physical commodity . . . . It has also become a valuable financial asset, bought and sold in electronic exchanges by traders around the world. And they, too, have helped push prices higher...
>
> "Gold prices do not go up because jewelers need more gold, they go up because gold is an investment," said Roger Diwan, a partner with PFC Energy, a Washington-based consultant. "The same has happened to oil..."
>
> "It is the case," complained BP's chief executive, Lord Browne, "that the price of oil has gone up while nothing has changed physically."[6]

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[3] Bhusahn Behree and Ana Campoy, "Why OPEC Idles as Gas Prices Reach New Higher: Cartel Balmes Refiners, Cites Flush Oil Supplies, Tug of War Over Profits," *Wall Street Journal*, May 25, 2007.
[4] Suzy Jagger, "Oil Prices Could Stay as High as $110 a Barrel this Year, says OPEC," *Timesonline*, March 24, 2008.
[5] Jad Mouawad & Heather Timmons, *Trading Frenzy Adds to Jump in Price of Oil*, N.Y. TIMES, Apr. 29, 2006, at A-1.
[6] *Id.*

Three key factors serve to drive the price spiral higher: volume, volatility and risk. The structure and availability of markets plays a role in allowing the volumes to increase.

> Changes in the way oil is traded have contributed their part as well. On Nymex, oil contracts held mostly by hedge funds – essentially private investment vehicles for the wealthy and institutions, run by traders who share risk and reward with their partners – rose above one billion barrels this month, twice the amount held five years ago.
>
> Beyond that, trading has also increased outside official exchanges, including swaps or over-the-counter trades conducted directly between, say, a bank and an airline. . . .
>
> Such trading is a 24-hour business. And more sophisticated electronic technology allows more money to pour into oil, quicker than ever before, from anywhere in the world. [7]

The influx of new money is sustained by movements of different institutions and individuals into the market. "Everybody is jumping into commodities and there is a log of cash chasing oil," said Philip K. Verleger Jr., a consultant and former senior advisor on energy policy at the Treasury Department."[8] Attachments 2 and 3 show that the amount of trading in commodities has quintupled in the past five years (which is coincident with the explosion of prices) and that energy commodities are driving that increase in trading.

This fundamental observation had been offered a couple of years earlier in a front page *Wall Street Journal* article entitled, "Oil Brings Surge in Speculators Betting on Prices: Large Investors Playing Ongoing Rise is Increasing Demand and Price Itself:"[9]

> Oil has become a speculator's paradise. Surging energy prices have attracted a horde of investors – and their feverish betting on rising prices has itself contributed to the climb.
>
> These investors have driven up volume on commodities' exchanges and prompted a large push among Wall Street banks and brokerage firms . . . . to beef up energy-trading capabilities. As the action has picked up in the past year, those profiting include large, well-known hedge funds, an emerging group of high-rollers, as well as descendants of once-highflying energy-trading shops such as Enron Corp.[10]

The notion is that the continual influx of money represents too much money chasing too few goods. By mid-2006, the Permanent Subcommittee on Investigations of the U.S.

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[7] *Id.*
[8] *Id.*
[9] Gregory Zuckerman & Henry Sender, *Oil Brings in Speculators Betting on Prices – Large Investors Playing Ongoing Rise is Increasing Demand and Price Itself,* WALL ST. J., Aug. 24, 2004, at. A-1.
[10] *Id.*

Senate had concluded that the estimates of a speculative premium on oil had risen to $25 dollars per barrel, or about one third of the world price.[11]

The most recent run up in crude prices has triggered similar concerns about the impact of financial speculation and trading on prices.

> "Oil is the new gold," said James Burkhard, director of global oil market analysis at the Cambridge Energy Research Associates consulting firm. "Oil has some intrinsic value, and that value remains even if the dollar depreciates."
>
> For weeks now, oil industry analysts have watched in amazement as oil's price kept climbing, even though government statistics showed that the country had ample supplies of oil and gasoline on hand. Gloomy news about the economy should have pulled oil down, because demand for petroleum usually slumps in a recession. But the bull market barely shrugged.
>
> "If you look at the run-up we've had for the last $20 or so, there's no other explanation for it," said Michael Lynch, president of the Strategic Energy & Economic Research consulting firm. "You have days when there's absolutely no news - except the dollar going down - and oil will still go up $3."
>
> **Role of big investors**
>
> The role of big investors in this year's price spike infuriates some consumer advocates. Investors such as hedge funds may view oil as nothing more than a financial asset, but to the rest of the country, it's fuel. The mercantile exchange didn't even start selling crude oil futures - the most common form of oil investment - until 1983.
>
> "We're taking a financial instrument that barely existed 20 years ago and allowing it to drive a stake through the heart of our economy," said Judy Dugan, research director for the Foundation for Taxpayer and Consumer Rights.
>
> Sooner or later, analysts say, the fundamental issues of oil supply and demand should bring down oil prices.[12]

The upward pressure that speculation puts on prices is not limited to crude, but applies to the whole energy complex and recent months have seen sharp increases in gasoline prices despite weakening fundamentals.

> Nymex gasoline futures have been rising, following oil, despite growing supplies of both commodities. Blame the falling dollar, which has made dollar-denominated oil contracts irresistible to foreign investors and to any investors looking for a safe haven for their money during a turbulent time in the stock market.

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[11] Permanent subcommittee on Investigations, Committee on Homeland Security and Governmental Affaires, United States Senate, *The Role of Market Speculation in Rising Oil and Gas Prices: A Need to Put the Cop Back on The Beat,* June 27, 2006.

[12] David R. Baker, "Blame the Dollar for High Gas Prices," *San Francisco Chronicle,* Mark 18, 2008.

> This buying by investors has pushed oil futures to a series of records in recent weeks, and the rest of the energy complex -- which includes gasoline futures -- has followed.
>
> Unfortunately, consumers pay for this investment frenzy in the form of higher pump prices. And despite mounting evidence that Americans are cutting back on their gasoline habit -- and may cut back even more drastically as gas gets more expensive -- it may be some time before prices start responding to lower demand.[13]

While the crude cartel and the domestic refinery oligopoly drive up the rents collected from consumers, they have neglected the production side. There is little if any spare capacity in the global crude oil market. There is a disastrous shortfall in domestic refinery capacity. (see Attachment 4). The refinery shortfall has doubled to over 3 million barrels per day since the early 1990s.

Growing global demand certainly has played a role in triggering the price spiral of recent years, but in a well-functioning market, steadily growing demand would not cause such a powerful upward surge in prices and a huge increase in volatility (see Attachment 5). It is the failure on the supply-side to invest, mergers resulting in highly concentrated markets, and barriers to entry that have allowed the cartel and the oligopoly to profit at the expense of the public. Speculation magnifies the upward spiral.

2. How is continuing to fill the Strategic Petroleum reserve impacting already high oil gas and diesel prides?

In the broad context of my analysis of the cause of high prices, SPR fill has little if any impact on prices. Putting less than 100,000 barrels per day into the SPR, in a global crude market of 85 million barrels will have little if any impact on prices.

3. How could temporarily suspending the fill of the Strategic Petroleum Reserve affect the price of oil, gasoline and diesel fuel? How could a temporary suspension of the filling or releasing oil from the SPR affect speculation in oil markets?

I do not believe that SPR fill has a significant impact on prices. I do not think that SPR draw down would have a significant affect on prices except under very special circumstances. If the draw down was in response to a specific, short term conditions, a rapid response to fill any shortfall might calm markets, but at its current size, the SPR could never provide a credible, mid-term threat to prevent price increases.

4. What policy changes should be considered to more effectively fill the SPR in the future?

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[13] John Wilen, "If people are driving less, why are gas prices rising?," *South Florida Sun-Sentinel.com*, March 18, 2008.

The strategic petroleum policy of the United States is a shambles. With growing demand and a declining ability to produce or refine oil domestically, relative to demand, the U.S. has experienced an explosion of imports. As we become more vulnerable to global shocks, one would think that we would increase our reserves and inventories to give us a buffer against disruptions. As we learned during Hurricane Katrina, that is not the case. The same strategic behavior that has tightened the refinery market has slashed inventories. Since 1990, our stocks of crude oil have declined by 40 percent; from about 200 days of net imports to about 120 (see Attachment 6). Our inventories of gasoline have declined even more over that period, from seven or eight days of supply (above minimum operating levels) to three or four (see Attachment 7). Does anyone believe that the world oil market has become 40 percent more secure in the past twenty years? I doubt it, but we have reduced our strategic insulation against supply shocks by at least 40 percent.

We have a strategic crude oil reserve that we refuse to use to alleviate economic pressures on consumers and the economy. We have not seriously increased the target size of the reserve in a couple of decades, even though our usage has increased substantially and our oil imports have doubled. We refused to fill the reserve when oil was inexpensive and we won't slow down filling it when oil is at record high levels. I do not believe that the amount of oil we put into the reserve on any given day has a significant impact on the price, but the price we pay has an impact on the budget.

We do not have strategic refinery or product reserves, when, in fact, lack of refinery capacity and extremely sparse product inventories have been important drivers of price increases in recent years. You will recall that in the wake of Hurricane Katrina our European allies helped us fill our short term needs with products, not crude oil. Many of those nations have strategic product reserves (or mandatory stockpiling requirements for the private sector). As nations that have long been dependent on imports, they have learned they need such reserves. We have only recently become dependent on imports for the majority of our supply, so we are only learning what it means. Unfortunately, we are not learning very quickly.

The long term solution to our oil addiction lies in reducing our consumption and increasing the supply of alternative transportation fuels. Congress took a big step in that direction last year when it enacted the Energy Independence and Security Act. That is a long term step in the right direction, but it is no excuse not to fix strategic petroleum policy. If the Energy Security and Independence Act achieves all of its goals, a decade and a half from now the U.S. will still be using over twenty million barrels per day of oil and importing about ten million barrels per day. We will still have a major national oil security problem and need a more aggressive strategic policy. Strategic petroleum policy needs to be dramatically improved in three areas – crude, refineries and product.

We used to call for a larger strategic petroleum reserve -- the bigger the better -- but after watching the federal government refuse to use the reserve when it might have helped, I am convinced we need a separate economic petroleum reserve created with the express intent of alleviating the economic burden on the economy and households during emergencies.

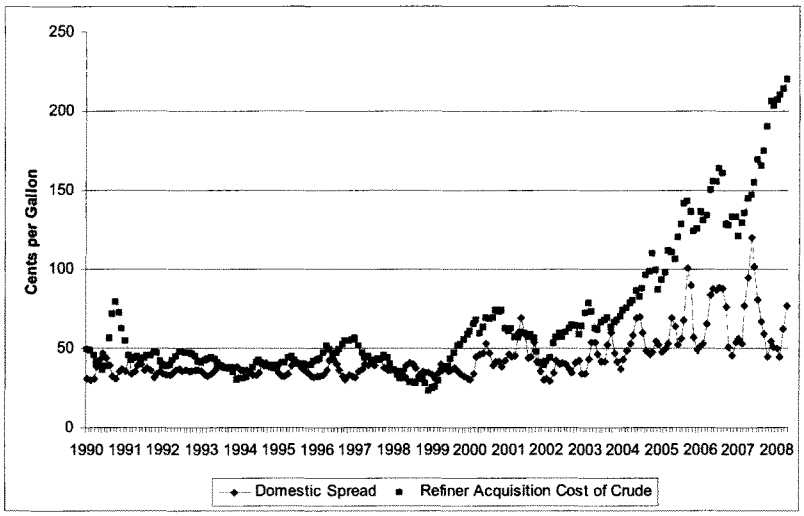
Crude oil will not do much good without the ability to refine it. We consume about one-fifth more product than we can produce in the U.S. The oil industry has failed to add sufficient capacity to keep up with demand, preferring a tight market that allows them to raise prices. The industry has dramatically reduced the available inventories to meet demand. The industry calls it "just-in-time" delivery, but in the petroleum sector where supply and demand are extremely inelastic, "just-in-time" means never there when you really need it. We need a strategic product reserve perhaps, a mix of public sector stockpiles and mandatory private reserves.

President Bush offered the oil industry military bases on which to build new refineries, but they turned him down. Representatives Dingell and Stupak had a bill to build government refineries that would supply the military during normal times but could divert the output to civilian uses during emergencies.

In the electric utility industry it is routine practice to have reserve margin requirements as a cushion against unforeseen events. While the oil system is not as demanding as the electricity network, it is certainly as important and prone to disruptive events. Raising the cost of operating the system to build in a responsible margin of safety will save consumer substantial cost in the long run. We need to think creatively of ways to climb out of the hole we have dug for ourselves over the past two decades.

Attachment 1:

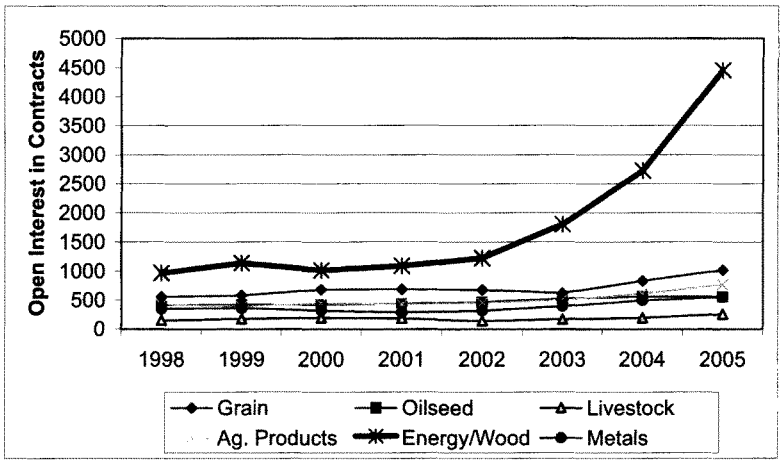
Record Gasoline Prices are the Result of Increases in Crude Oil Prices and the Domestic Spread (pump price minus crude oil and taxes)



Source: Energy Information Administration, Database available at www.eia.doe.gov

Attachment 2:

Trading Of Non-Financial Instruments (Average Month-end Open Interest)



Source: Commodity Future Trading Commission, Annual Reports: Futures Statistics by Major Commodity Group.

Attachment 3:

Trading has quintupled Since 2002

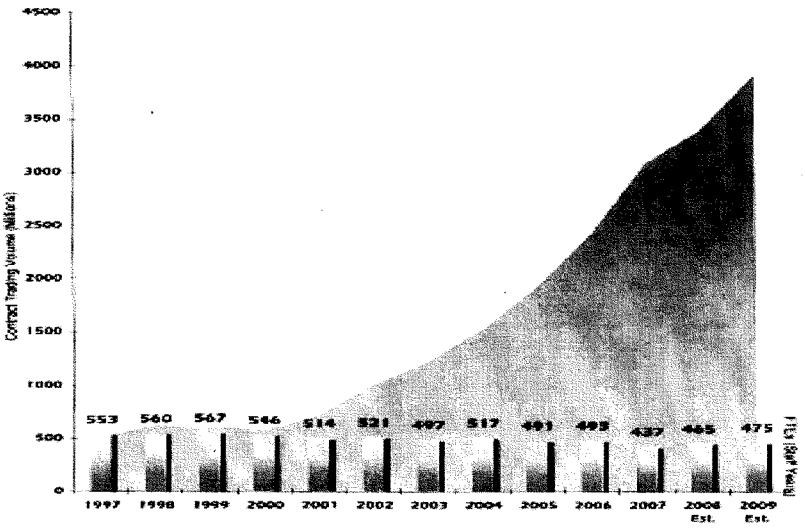
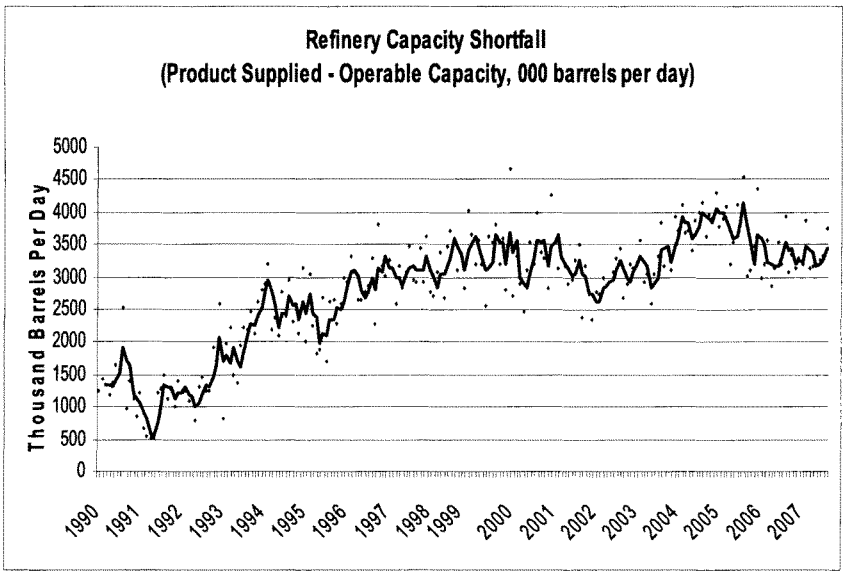


Figure 1: Growth of Volume of Contracts Traded and FTEs

Source: Commodity Futures Trading Commission, FY 2009 President's Budget and Performance Plan, available at
http://www.cftc.gov/stellent/groups/public/@aboutcftc/documents/file/2009budgetperf.pdf

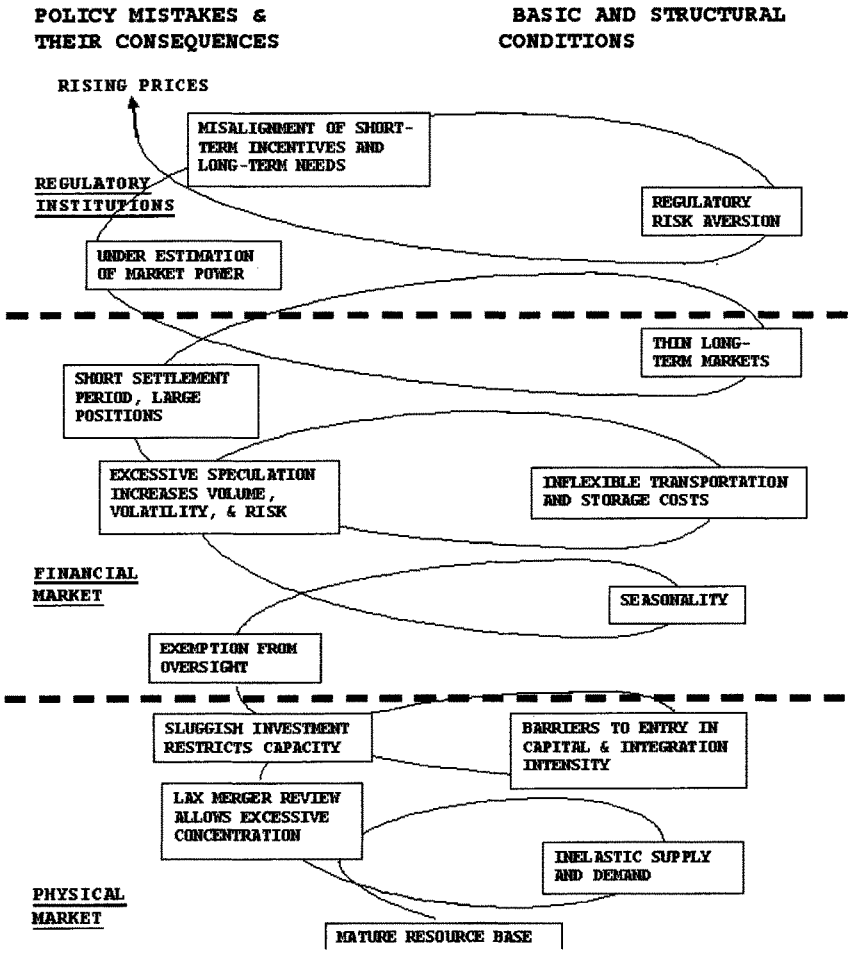
Attachment 4:
The Refinery Shortfall has Doubled Since the Early 1990s



Source: Energy Information Administration, Database available at www.eia.doe.gov

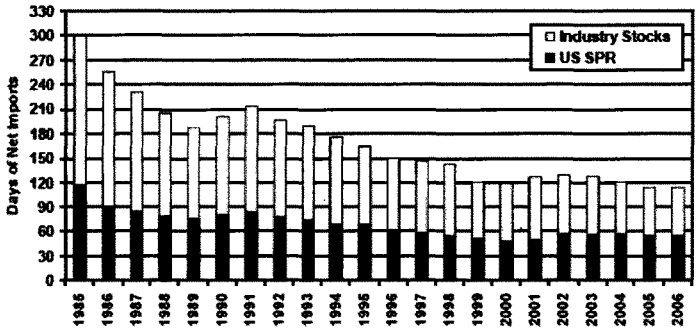
Attachment 5

Physical, Financial and Regulatory Factors in the Explosive Spiral of Energy Prices



Attachment 6:

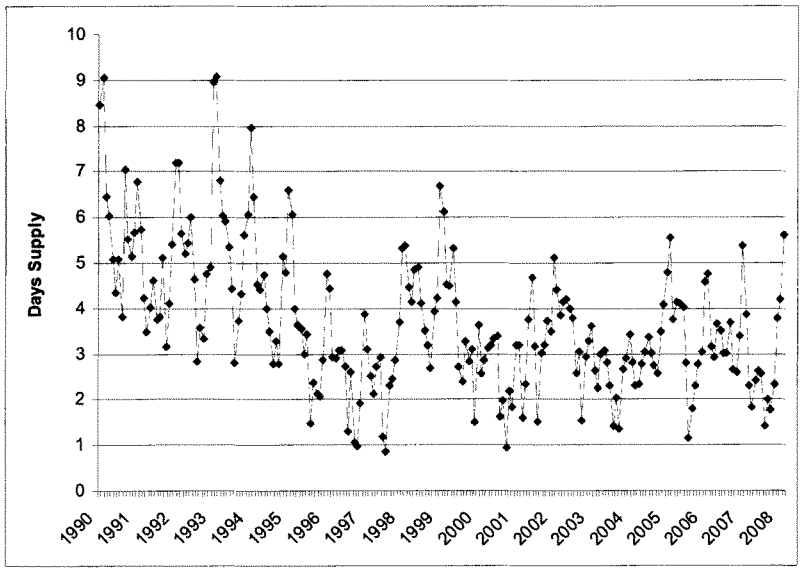
U.S. Crude Oil Stocks



Source: U.S. Department of Energy, *Strategic Petroleum Reserve Annual Report for Calendar Year 2006*, p. 30

Attachment 7:

Gasoline Inventories have Plummeted compared to Demand
(Das Supply above Minimum Operating Inventories)



Source: Energy Information Administration, Database available at www.eia.doe.gov

The CHAIRMAN. Thank you. Thank you, Dr. Cooper, very much.

Our next witness is Mr. Dave Berry. He is the Vice President of Swift Transportation, Incorporated, the nation's largest truckload carrier. Mr. Berry is also the Chairman of the American Trucking Association's Environmental and Energy Policy Committee. The American Trucking Association represents over 37,000 American truck carriers.

We welcome you, sir. Whenever you are ready, please begin.

STATEMENT OF DAVE BERRY

Mr. BERRY. Thank you, Mr. Chairman, and members of the Committee. My name is Dave Berry. I am the Vice President of Swift Transportation, a truck carrier headquartered in Phoenix, Arizona. Swift operates more than 18,000 trucks and employs more than 21,500 hardworking, safe individuals. As a trucking company, Swift is dependent on a plentiful supply of diesel fuel. In fact, Swift purchases about 650,000 gallons of diesel fuel daily to ensure that our trucks are able to deliver freight on time to our customers.

Last year, during the first quarter, Swift spent about $2.37 per gallon for diesel fuel. In this year, first quarter, we spent about $3.37 per gallon. This dramatic, 42 percent, year-over-year increase in the cost of diesel fuel is harmful to Swift and to the U.S. economy. I must add that earlier this week the national average price for diesel fuel was $4.14.

Today, I appear before you representing not just Swift but the entire U.S. trucking industry. You have heard about ATA. The trucking industry is the backbone of this nation's economy, accounting for more than 80 percent of the nation's freight bill, and employing more than 8.5 million hardworking Americans.

The trucking industry delivers virtually all of the consumer goods in the United States. We are an extremely competitive industry comprised largely of small businesses. Roughly 96 percent of all interstate motor carriers operate 20 or fewer trucks.

Diesel fuel is the lifeblood of the trucking industry. Each year the trucking industry consumes over 39 billion gallons of diesel fuel. This means that a one-cent increase in the average price of diesel costs the trucking industry an estimated $391 million in fuel expenses annually. And every penny increase in both gasoline and diesel costs all U.S. consumers nearly $2 billion.

The average national price of diesel fuel is now $4.14 per gallon, nearly double what it cost in 2004. Based on current Department of Energy forecasts, the trucking industry will be forced to spend an incredible $141 billion on fuel this year. This is $29 billion more than in 2007, and more than double the amount we spent four years ago.

Today it costs approximately $1,200 just to fill up a truck. As a result of this dramatic increase in the price of diesel, which has coincided with the down turn in the economy and a softening of demand for freight transportation services, many trucking companies are struggling to survive.

Against this backdrop, we greatly appreciate the opportunity to discuss the Strategic Petroleum Reserve and other initiatives that could help address the speculative bubble that has materialized in the petroleum market.

The remainder of my statement highlights actions we believe Congress can take to help restore balance to the petroleum market, increase supplies of petroleum, and lower the demand for petroleum. We are confident that these initiatives will help reduce the price of diesel fuel, which has been damaging the trucking industry and the economy.

ATA has previously asked the Federal Government to temporarily stop filling the Strategic Petroleum Reserve and consider releasing oil from the SPRO to address this crisis. The SPRO currently stores just over 700 million barrels of crude oil, which is the equivalent of a 58-day supply of imported oil for our nation to—for our nation or a nine-day supply of the oil consumed globally.

The U.S. currently deposits 70,000 barrels of crude oil into the SPRO each day. To suspend filling of the SPRO will reduce the global demand for oil and could help lower its price. There are undoubtedly many factors contributing to the runup in fuel prices, but in a recent article in Investor's Business Daily, an economist with the Institute of International Economics suggested that one of those factors was the SPR's renewed purchases of oil on the open market.

ATA has also asked the administration to release oil from the SPR. While we know the SPR does not contain enough oil to permanently alter the supply of crude oil in the marketplace, we believe that strategic releases from the SPR could temporarily increase the supply of crude oil, and hopefully help restore rational behavior to the petroleum markets. This type of government intervention could drive speculators out of the market and help ensure that petroleum prices are once again driven by supply and demand.

We acknowledge that the rules governing the management of the SPR are the subject of an international agreement with other developed nations. This agreement limits our ability to use SPRO to address market irregularities and may be an issue that Congress should further investigate.

We believe that temporarily halting the filling of the SPR and releasing oil from the SPR could have a positive impact on the speculative nature of today's petroleum prices. We recognize, however, that this step, in and of itself, will not address the long-term petroleum pricing issues.

I have put comments—additional comments on the record. I would just summarize by saying that other things to consider would be increasing domestic oil exploration, increasing domestic petroleum refining capacity, eliminating the tax subsidies for exported biodiesel, and enacting a national fuel standard for diesel.

Thank you.

[The prepared statement of Mr. Berry follows:]

Before the
U.S. House of Representatives
Select Committee on Energy Independence and Global Warming

Statement of Dave Berry
on behalf of the
American Trucking Associations, Inc. (ATA)

Pumping Up Prices – The Strategic Petroleum Reserve and Record Gas Prices

April 24, 2008

Mr. Chairman and Members of the Committee:

My name is Dave Berry; I am the Vice President of Swift Transportation, a large truckload carrier headquartered in Phoenix, Arizona. Swift operates more than 18,000 thousand trucks and employs more than 21,500 thousand individuals. As a trucking company, Swift is dependent on a plentiful supply of diesel fuel. In fact, Swift purchases several hundred thousand gallons of diesel fuel daily to ensure that our trucks are able to deliver freight to our customers. Last year, during the first quarter Swift spent about $2.37 per gallon for diesel fuel and this year first quarter we spent about $3.37 per gallon. This dramatic 42% year-over-year increase in the cost of diesel fuel is harmful to Swift and devastating to the U.S. economy. I must add that yesterday the average price for diesel was $4.14.

Today, I appear before you representing not just Swift, but also the entire U.S. trucking industry. I am proud to serve as the Chairman of the American Trucking Associations Environmental and Energy Policy Committee. ATA is the national trade association of the trucking industry. Through its affiliated state trucking associations, affiliated conferences and other organizations, ATA represents more than 37,000 trucking companies throughout these United States.

The trucking industry is the backbone of this nation's economy accounting for more than 80% of the nation's freight bill and employing more than 8.5 million hard-working Americans. The trucking industry delivers virtually all of the consumer goods in the United States. We are an extremely competitive industry comprised largely of small businesses. Roughly 96% of all interstate motor carriers operate 20 or fewer trucks.

Diesel fuel is the lifeblood of the trucking industry. Each year, the trucking industry consumes over 39 billion gallons of diesel fuel. This means that a one-cent increase in the average price of diesel costs the trucking industry an additional $391 million in fuel expenses annually. The average national price of diesel fuel is now $4.14 per gallon, nearly double what it cost in 2004. Based on current Department of Energy forecasts, the trucking industry will be forced to spend an incredible $141.5 billion on fuel this year. This is $29 billion more than in 2007, and more than double the amount we spent 4 years ago. Today it costs approximately $1,200 to refuel a truck. As a result of this dramatic increase in the price of diesel, which has coincided with a downturn in the economy and a softening of the demand for freight transportation services, many trucking companies are struggling to survive.

Against this backdrop, we greatly appreciate the opportunity to discuss the Strategic Petroleum Reserve (SPR) and other initiatives that could help address the speculative bubble that has materialized in the petroleum markets. The remainder of my statement highlights actions we believe that Congress can take to help restore balance to the petroleum markets, increase supplies of petroleum and lower the demand for petroleum. We are confident that these initiatives will help reduce the price of diesel fuel, which has been damaging to the trucking industry and consumers.

A. The Strategic Petroleum Reserve

ATA has previously asked the federal government to temporarily stop filling the strategic petroleum reserve (SPR) and consider releasing oil from the SPR to address this fuel crisis. The SPR currently stores just over 700 million barrels of crude oil, which is equivalent to a 58-day supply of imported oil for our nation or a 9 day supply of the oil consumed globally.

The U.S. currently deposits 70,000 barrels of crude oil into the SPR each day. Suspending the filling of the SPR will reduce the global demand for oil and could help lower its price.

ATA also has asked the Administration to release oil from the SPR. While we know that the SPR does not contain enough oil to permanently alter the supply of crude oil in the market place, we believe that strategic releases from the SPR could temporarily increase the supply of crude oil and hopefully help restore rational behavior to the petroleum markets. This type of government intervention could drive speculators out of the market and help ensure that petroleum prices are once again driven by supply and demand.

We acknowledge that the rules governing the management of the SPR are the subject of an international agreement with other developed nations. This agreement limits our ability to use the SPR to address market irregularities and may be an issue that Congress should further investigate.

We believe that temporarily halting the filling of the SPR and releasing oil from the SPR could have a positive impact on the speculative nature of today's petroleum prices. We recognize, however, that this step in and of itself will not address the long

term petroleum pricing issues. The remainder of this statement discusses additional measures that should be taken to increase supply and reduce consumption of petroleum, which we believe will have a more profound impact on the price of petroleum products, including diesel fuel.

B. Recommendations to Increase Supply.

1. Increase Domestic Exploration. ATA believes that increasing our domestic supply of crude oil will help lower diesel fuel prices. To achieve this goal we need to begin environmentally responsible exploration for crude oil in the Arctic National Wildlife Reserve and Outer Continental Shelf. We also must begin developing the oil shale and tar sands resources in Colorado, Utah and Wyoming and eliminating the barriers to utilizing coal-to-liquid technologies to exploit our vast domestic coal resources. The technology exists to ensure that these resources are developed in a manner that protects the environment. The debate over whether to drill in these areas of the United States has been ongoing for decades; however, in light of geopolitical instability, the growing demand for energy from Asia and Europe, and new drilling techniques to ensure that environmentally-sensitive areas remain protected and carbon emissions are sequestered, it is time to change these policies and develop these critical domestic resources.

2. Increase Domestic Refining Capacity. For years now it has been apparent that the U.S. has underinvested in refining capacity. Regardless of the reason for this underinvestment (e.g., environmental restrictions or economic factors), it is time to reverse this trend.

To help expand U.S. refining capacity, ATA has asked that EPA streamline its permitting process to facilitate refinery expansions and new refinery construction. Congress also should consider enacting incentives to encourage increased domestic refinery capacity.

3. Enact a Sensible Approach to Renewable Fuels. The United States needs to enact a more sensible approach to the use of alternative fuels such as biodiesel. The voluntary use of high quality biodiesel in low percentage blends may be an acceptable means of extending the nation's diesel fuel supply. But biodiesel producers must improve the quality of their product. A recent DOE study showed that 10% of the biodiesel produced last year did not meet the quality specifications recommended by diesel engine manufacturers. This off-spec product causes motor carriers to bear increased maintenance and repair costs or worse could strand a truck on the side of the road, preventing the timely delivery of freight and potentially endangering the truck driver's health.

The economics of biodiesel are also a concern. When Congress first began considering the renewable fuel standard. Soy bean oil, the primary feedstock for biodiesel, was about 25 cents per pound, and after application of the $1 federal tax credit for biodiesel blending, the decision to use biodiesel was economically neutral. Today, however, soy bean oil is trading at 60 cents per pound and the cost of producing biodiesel has jumped to $4.88. Even considering the $1 per gallon blending credit, which incidentally is due to expire at the end of this year, the current cost of producing biodiesel is an incredible $4.35 per gallon. This price does not include the cost of transporting biodiesel to market from the areas where it is produced. For this reason, the trucking industry cannot afford to use biodiesel today. We note that beginning next year the federal biodiesel mandate contained within the renewable fuel standard (RFS) will require the use of 500 million gallons of biodiesel. At current economic levels, this aspect of the RFS amounts to a direct hidden tax on the trucking industry of approximately $245 million. We also note that this increase in fuel cost does not include the increase in maintenance costs required by biodiesel use or the fuel economy penalty that biodiesel use portends.

Before leaving the discussion of the economics of biodiesel, I would like to mention ATA's support for Congress' efforts to close the splash and dash loophole. We believe that the American public would be outraged if they knew that their tax dollars were being spent to subsidize biodiesel that is ultimately exported for sale outside the U.S. Beginning next year the Congressionally-mandated biodiesel standard will require U.S. companies to consume 500 million gallons of biodiesel. This number jumps to a billion gallons in 2012. For this reason, we do not believe that we should create an incentive to export subsidized biodiesel, which will drive up the price of this mandated alternative fuel for U.S. consumers.

4. One National Diesel Fuel Standard. While gasoline moves people, diesel fuel moves our economy. Due to the uniquely interstate nature of diesel fuel, ATA believes that Congress should take extraordinary steps to ensure that no state enacts a boutique diesel fuel mandate. Today, California and Texas require special boutique diesel fuel blends. These unique blends cost more to produce and prevent diesel fuel from simply being transported from one jurisdiction to another in times of shortage. In addition, boutique fuels are typically produced by only a handful of refineries, which results in less competition, higher refining margins, and ultimately higher fuel prices.

While Congress took steps to curb the proliferation of boutique fuels as part of the Energy Policy Act of 2005, the Act created a loophole for states seeking to enact renewable fuel mandates. To date, 5 states have enacted biodiesel mandates and several others are considering this course of action. In light of the federal requirement to use biodiesel, which begins next year, we believe that Congress must preempt state biodiesel mandates. These duplicative mandates are not needed to ensure a strong domestic biodiesel industry and will simply create an economic environment where biodiesel producers can charge extraordinarily high prices for their product – insulated from the checks and balances of a competitive market. These state mandates will have an adverse impact on the trucking industry and consumers that depend upon trucks to deliver food, clothing, and virtually every other consumable goods.

C. Recommendations to Reduce Demand

In addition to increasing our supply of crude oil, we need to focus on reducing consumption and lessening the demand for petroleum.

1. Controlling Speed. The typical heavy-duty diesel truck travels between 5 and 7 miles on a gallon of diesel, depending upon load, route, equipment and drivers' skill. Speed has a direct correlation to fuel consumption. In fact, for each mile per hour that a truck travels in excess of 65 mph, its fuel economy decreases by 1/10 of a mile per gallon. Thus, a truck traveling at 65 mph that is capable of achieving 6 miles per gallon, will achieve only 5 miles per gallon when accelerating to 75 mph. For this reason, ATA has called upon Congress to establish a national speed limit of 65 mph for all vehicles. Of course, to achieve the maximum benefit of this policy, the federal government will need to partner with States to ensure strict enforcement of the 65 mph speed limit.

ATA also has petitioned the Administration to require that all new trucks be equipped with factory-installed devices that electronically limit the truck's maximum speed to 68 mph. In addition to the fuel conservation benefit from ensuring that trucks do not exceed this speed, we are confident that this measure will further reduce the number of fatalities that occur on our nation's roadways.

2. Reducing Idling. The trucking industry consumes a significant amount of fuel idling its trucks. Idling can take various forms, the most obvious being when trucks are stopped in congested metropolitan areas during peak drive periods. Less obvious is the idling of trucks equipped with sleeper compartments to operate heating and cooling devices that permit comfortable sleep and other rest periods. Proven technologies now exist to reduce fuel consumption from main engine idling. Unfortunately, these technologies are expensive and many trucking companies cannot afford the initial capital expenditures necessary to purchase and install these devices. For this reason, ATA has asked Congress to waive the federal excise tax on idle reduction systems and to provide tax credits to trucking companies that purchase anti-idling equipment. We also would like Congress to clarify that the 400-pound weight exemption that was included for these devices are accepted in all jurisdictions within the United States.

3. SmartWay[sm] In February 2004, the freight industry and EPA jointly unveiled the SmartWay[sm] Transport Partnership (SmartWay[sm]), a collaborative voluntary program designed to increase the energy efficiency and energy security of our country while significantly reducing air pollution and greenhouse gases. The program, patterned after the highly-successful Energy Star program developed by EPA and DOE, creates strong market-based incentives that challenge companies shipping products and freight operations to improve their environmental performance and improve their fuel efficiencies. To become a partner a fleet must commit to reduce fuel consumption through the use of EPA-verified equipment, additives, or programs. By 2012, the SmartWay[sm] program aims to save between 3.3 and 6.6 billion gallons of diesel fuel per year. EPA predicts SmartWay[sm] participants will also reduce their annual greenhouse gas

emissions by 48 million tons of CO_2 equivalents. SmartWay[sm] is one voluntary greenhouse gas program that not only works, but exceeds expectations.

The trucking industry has fully embraced SmartWay[sm] and relies upon the innovativeness of this cutting edge program. However, while the program is growing by leaps and bounds, future funding remains uncertain. While ATA and other freight and shipping sectors continue to work towards ensuring a separate line item in future EPA appropriations for SmartWay[sm], we are troubled with the FY08 funding cuts to the program. More specifically, total monies allocated to the program this year dropped from roughly $3 million in FY07 to $2 million in FY08. Funding cuts to grants, contracting, marketing, technology development, and other program expenses have severely undermined the mission of the program. It is our hope that the EPA consider redirecting an additional $1 million from the Climate Protection Program under the FY08 budget to ensure the continued growth and success of this remarkable program. Given that the Energy Star program's annual operating budget is $50 million, we also ask that Congress provide a line item appropriation to ensure that SmartWay[sm] is adequately funded in the future.

4. Regulation of Petroleum Exchanges. Balancing the need for an efficient petroleum market with the desire to limit petroleum speculation could help burst the bubble that has formed in the petroleum markets. Congress should investigate the impact of requiring increased margin limits on petroleum traders that do not take delivery of product, and implementing maximum position limits for traders. These actions could make it less attractive for hedge funds to trade petroleum, while ensuring that a robust market exists for legitimate purposes.

5. Price Gouging. The federal government, working with the state attorneys general, can help to ensure that fuel price gouging, such as we witnessed following the hurricane disasters on the Gulf Coast in 2003, do not recur in these critical times. We have already had sporadic complaints from our members of price gouging, and a resumption of such criminal activity can only further damage an already-stressed industry. As we understand it, price gouging is not a federal offense, and state laws against the practice vary widely, with differing penalties and different definitions of the underlying offense. In these circumstances, we ask the Congress to consider making price gouging a federal crime. If they are properly armed with good law, the vigilance of law enforcement officials, coupled with the will to prosecute offenders, may make a great deal of difference in keeping the fuel market free of distortion. In making this recommendation, we note the importance of properly defining the term price gouging in order to ensure that petroleum marketers may continue to sell fuel during times of shortage without risk of being held criminally liable.

* * * * *

ATA and Swift Transportation appreciate this opportunity to offer our insight into measures that the country should take to help address the high cost of petroleum products.

Appendix

1. What impacts are high diesel and energy prices having on the trucking industry? How are those impacts passed along to other areas of our economy and American consumers?

Rising fuel costs are having a huge impact on the trucking industry. For many motor carriers, fuel is now equal to labor as the highest expense; and for some carriers, fuel has surpassed labor as their largest expense.

Because trucks haul 70 percent of all freight tonnage, and 80 percent of communities receive their goods exclusively by truck, rising fuel costs have the potential to increase the cost of everything that is transported by truck. This is extremely significant since trucks haul virtually all consumer goods.

The trucking industry is extremely competitive and operates on very low profit margins, so it is easy to see why many trucking companies are reporting that higher fuel prices have greatly suppressed profits, if they are making a profit at all. The trucking industry cannot absorb these dramatic fuel price increases and these costs ultimately show up on the grocery shelves and on the store shelves.

The trucking industry spent over $112 billion on fuel in 2007, and we're on pace to spend $141.5 billion in 2008 – a record high. That's up from $106 billion in 2006. In 2007, the industry's diesel expenditures were about equal to the entire New Zealand economy. Additionally, at $112.6 billion, the industry's diesel bill was 9 percent larger than the entire Kuwaiti economy, the 6th largest oil exporter in the world.

2. What impacts might we see on the trucking industry, American consumers and our economy this summer if diesel and energy prices continue to rise?

If diesel and energy prices continue to rise, we'll see more and more carriers going out of business. In fact, we're already seeing that. The number of trucking companies going out of business has climbed for five consecutive quarters, hitting 935 in the first quarter of 2008, which is the highest number of failures in a quarter since the third quarter of 2001. These bankruptcy statistics only include companies with at least five trucks; therefore, it is likely that many more carriers have gone under since smaller carriers are more susceptible to failure.

As the price of diesel skyrockets, it not only devastates truckers, but their customers as well, many of which are mom-and-pop stores. Ultimately, the consumer is forced to pay higher prices for food and other basic necessities.

We are very concerned that out-of-control energy prices will greatly magnify our current economic slowdown and delay our economic recovery. If households have to spend their forthcoming tax rebate checks on energy, the stimulus will be significantly limited. Undoubtedly, higher energy prices act as a tax on households.

3. How could temporarily suspending the fill of the SPR affect the price of oil, gasoline and diesel fuel?

While we know that the amount of oil being placed in the SPR is relatively small compared to total U.S. consumption, we believe that a small increase in the supply of crude oil would signal a willingness to address the speculative bubble that has been created and could help restore rational behavior to the petroleum markets. This type of government intervention could drive speculators out of the market and help ensure that petroleum prices are driven by supply and demand.

4. How would providing immediate relief from high prices by temporarily suspending the fill of the SPR affect the trucking industry and American consumers?

If in fact suspending the fill rate of the SPR were to bring oil prices down, the trucking industry, as well as the overall economy, would benefit directly. Just a one-penny decrease in the price of diesel annualized over an entire year would save the trucking industry an additional $391 million a year.

The CHAIRMAN. Thank you, Mr. Berry, very much.

Our next witness is Mr. Kevin Book. He is the Senior Vice President and Analyst for Energy Policy, Oil, and Alternative Energy at Friedman, Billings, Ramsey and Company. In those senior roles, he evaluates the impact of legislative actions on investment opportunities within the energy sector.

Welcome, sir. Whenever you are ready, please begin.

STATEMENT OF KEVIN BOOK

Mr. BOOK. Mr. Chairman, did you intend for me to go next or for——

The CHAIRMAN. Yes.

Mr. BOOK. Okay. Great, thank you. Chairman Markey, thank you very much. Thank you, distinguished members of the Committee, for the privilege of contributing to your discussion today. The opinions I express this morning are my own and do not necessarily reflect the viewpoint of my employer.

To summarize my remarks, as my testimony is——

The CHAIRMAN. And by the way, a graduate of Tufts and Fletcher School of Diplomacy in my district, so a very well educated——

Mr. BOOK. You were my Congressman for six years, sir, yes. And I enjoyed you very much. Thank you.

The CHAIRMAN. Thank you. [Laughter.]

Mr. BOOK. In my view, fundamental scarcity and geopolitical risk form the backdrop to today's discussion. Each day the world consumes just shy of 86 million barrels of petroleum and refined petroleum products. The infrastructure that supplies this oil took nearly a century and a half and multiple trillions of dollars to evolve.

In just the last five years, however, demand patterns have shifted dramatically. Since 2003, developed world oil consumption has remained essentially flat, while non-OECD demand has risen by approximately 18 percent. Simply put, the world's emerging economies have entered into their energy-hungry adolescence.

I don't need to enumerate them here, but an unfortunate confluence of geopolitical risks threats the stability of existing supply. This year's WTI futures prices averaged slightly more than $100 per barrel. As has been mentioned repeatedly, this is a significant premium to most fair estimates of extraction costs in the Gulf of Mexico and the Canadian tar sands. The dollar's decline against the Euro and other currencies may be partly to blame. Producers may charge higher prices to compensate for value erosion.

Increased speculative activity may play a small role as well, although speculators may also have more of an effect on the velocity of oil prices than their absolute levels. Speculators aren't the whole story. Commercial refiners of crude oil cannot operate their businesses without stable supply. They must bid up for oil at times of greatest perceived supply risk. In many commodity markets, this behavior can accelerate at capacity utilization levels above 90 percent.

Three million barrels of global spare capacity and 86 million barrels of daily demand puts the global oil system at about 96 percent of capacity. And yet one well-conceived U.S. energy policy keeps refiners from engaging in bidding wars and hoarding oil—the Strategic Petroleum Reserve. The SPR primarily does ensure against

the risk of a catastrophic supply interruption. It provides other value, too.

Refiners assured of supply can operate at lower inventory and working capital levels. Assurance of supply in the event of an emergency can deter hoarding and gouging by market participants. To quantify the safety value of the SPR, you can talk in storage levels of barrels. But it might be better to express it in terms of the days of import coverage provided—that is, the number of barrels of storage divided by the number of barrels the nation imports each day.

Import cover has fallen from the 100-day range in 1990 to estimates, depending on how you count it, between 58, which I think we heard, and as high as 70, depending on what you think demand is. And there is a variety of reasons for this—deterred investment at low prices, conventional basis is declining, increased household wealth, transportation use rising as well.

The suggestion I would make is that basing any fill decision on days of import cover, rather than absolute supply level, and using a thorough and ongoing assessment of supply risks might make it easier to determine fill rates and quantities and also easier to communicate that message and the importance of that message to the American people.

Now, my view is that markets can sometimes provide useful predictions of future events, especially markets as big, liquid, and broadly traded as the oil market. And one might interpret $117, or even $100, oil as a risk premium that says maybe supply is riskier than we think, and we should continue to fill the SPRO.

I realize that is not a popular view at this point in time. Suspending the fill may do little, however, to affect price as long as the emerging world drives oil demand. There are linkages worth noting. U.S. imports feed overseas manufacturing chemicals and logistics demand for oil. The wealth exporters aren't selling into the U.S. stokes demand at home. Subsidies overseas make energy users less sensitive to price. Seventy-thousand barrels per day might quickly be absorbed with little or no price effect.

U.S. circumstances can affect demand and global price. A serious recession—and hopefully this doesn't happen—here could decrease demand by 300,000 to 400,000 barrels today, and an echo overseas, in China alone, could account for another 250,000 barrels per day in decline.

Creating that surplus with a non-emergency drawdown could affect price, particularly the first time it occurs and especially if it happens with little or no fanfare and surprises the market. On the other hand, the price effect might be very small relative to the social cost of effectively burning the nation's safety net in our gas tanks.

Moreover, the price effect might be temporary, could be offset by demand growth, and OPEC cutbacks as well, and could even set commodity market expectations so that traders view the SPRO as just another upstream oil supplier. Now, you can't run it full tilt for more than five months, as you know. And if you do, you are out of your safety net, refiners have to buy more oil, and OPEC has more market power.

So I think I would conclude by suggesting that there is risk that demand may start to soften of its own accord. There are also opportunities. One of these is that there is a real call now to build on the good work you did last year—the Energy Independence and Security Act—to add still greater standards.

And when you make a cocktail, sometimes you marry two things that are bitter to come up with something sweet. And it has been suggested here today the notion that you can marry increased domestic energy production, including biofuels, which are a very big part of it, with increased conservation, I think might be the drink that cools the summer driving season in years to come.

Thank you very much. I look forward to your questions.

[The prepared statement of Mr. Book follows:]

Testimony of Kevin Book
Senior Vice President, Senior Analyst, Energy Policy, Oil & Alternative Energy
FBR Capital Markets Corporation

Before the
U.S. House of Representatives
Select Committee on Energy Independence and Global Warming
April 24, 2008

Chairman Markey, Ranking Member Sensenbrenner and distinguished Members of this Committee, thank you for the privilege of contributing to your discussion concerning the Strategic Petroleum Reserve (SPR). The opinions I will express this morning are my own and do not necessarily reflect the viewpoint of my employer, Friedman, Billings, Ramsey & Company, Inc.

Your April 21, 2008 invitation to testify posed the following four timely and thoughtful questions:

1. *How is continuing to fill the Strategic Petroleum Reserve impacting already high oil, gas and diesel prices?*
2. *How have energy prices responded in the past to suspending the fill or releasing oil from the SPR?*
3. *How could temporarily suspending the fill of the Strategic Petroleum Reserve affect the price of oil, gasoline and diesel fuel? How could a temporary suspension of the fill or releasing oil from the SPR affect speculation in oil markets?*
4. *What policy changes should be considered to more effectively fill the SPR in the future?*

My testimony today provides my best responses to these questions.

Fundamental Scarcity

The global oil system is complex, fragmented and beyond the control of any single government or corporate entity. Each day, the world consumes nearly 86 million barrels, or 3.6 billion gallons, of petroleum and refined petroleum products. During the course of the 149 years since the modern oil industry began in Pennsylvania, public and private entities have invested trillions of dollars into the extraction, refining, transportation and storage infrastructure that enables daily delivery of oil and oil products to market. Just maintaining this global system requires multiple billions of dollars per year in capital outlays; improving and expanding it will require tens of billions of dollars more each year, and this cost is rising rapidly as skilled labor and raw materials become scarcer.

Although it took almost a century and a half for this global infrastructure to evolve, demand patterns have shifted dramatically during the last five years. According to latest-available EIA estimates[1], OECD petroleum demand has remained essentially flat since 2003, rising only 350,000 barrels per day to an average of 48.96 million barrels per day, and IMF projections suggest that this level may have trended slightly downward in recent months as a result of economic slowdowns in the U.S. and several European economies. By contrast, non-OECD demand has risen approximately 18%, or 5.62 million barrels per day, to an average 36.63 million barrels per day during the same period. Simply put, the world's emerging economies have entered into their energy-hungry adolescence.

Credible geological assays and a historical perspective on petroleum production suggest that the world is neither running out of oil nor losing its capability to improve upon conventional recovery techniques that will supply a hungry market at a higher price. Oil prices of $117 per barrel tell the world's investor-owned oil companies that it's worth their time to attempt engineering feats that were previously inconceivable or economically unviable, including the production of offshore basins that lie beneath the ocean's salt layer and the extraction and upgrading of heavy oil from dense tar sands. A supply response is underway, but it will take time. As many as seven to ten years may lie between the corporate decision to proceed and the delivery of new supply to the market.

In the short term, an unfortunate confluence of geopolitical risks within the world's most promising producing regions threatens the stability of existing oil supply. Mexican and Latin American governments may have failed to adequately invest in their oilfields, and resurgent resource nationalism throughout Latin America may exclude or deter future investment by private oil companies. Local conflicts in Africa – particularly in Nigeria – continue to depress production and interrupt exports. A combination of stultifying taxation and *de facto* nationalization of the petroleum industry may account for the recent flattening of Russian oil production. In Iraq, although production has improved markedly since war began in 2003, inadequate investment during the regime of Saddam Hussein and ongoing instability prevent

[1] http://www.eia.doe.gov/emeu/ipsr/t21.xls, updated April 11, 2008; accessed April 22, 2008.

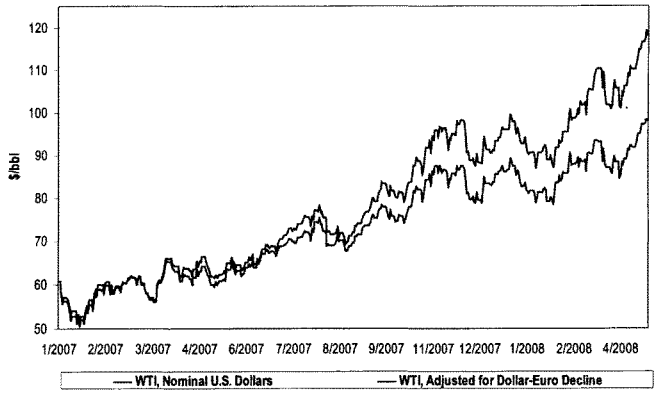
that nation from realizing its production potential which, by some estimates, could exceed five million incremental barrels per day. Adding to this unhappy mosaic, Iran's President has explicitly threatened to use oil as an economic weapon against the West by cutting off some or all of its 2.5 million daily export barrels. While this seems unlikely – it would effectively transfer wealth from Iran's treasury to Saudi Arabia – any interruption in Iranian production, intentional or otherwise, could consume virtually all of the spare capacity within the global oil system (recent global spare capacity estimates range from about 2.7 million to 3.2 million barrels per day).

Market Price and Supply Risk

Although markets serve primarily as clearinghouses for trade, I share the popular view that market prices also offer some predictive value by aggregating the expectations of participants regarding future events. If this proposition holds, then oil, as the world's most widely traded commodity, may exhibit significant predictive value. Because I do not dispute the short-term vulnerabilities of markets to mob dynamics, it may be prudent to discount the precipitous rise in crude price during the last week. That run-up may well be a bubble, and if it is, increasing evidence of declining demand and economic strictures may cause it to burst. Looking instead at the year-to-date average price of near-month NYMEX crude futures, the market has been pricing future oil supply at slightly more than $100 per barrel. This price reflects a significant premium to the cost of extracting a "marginal" barrel from the Gulf of Mexico or Canadian tar sands, which I would estimate at approximately $75 to $80.

Some portion of the market price premium to extraction cost can probably be explained by the dollar's decline against the Euro, as presented below.

Dollar-Euro Adjusted WTI Front-Month Futures Price, January 1, 2007 – April 23, 2008, January 2007 Basis



Source: FBR Research

Oil producers who buy services in Euros may require higher dollar prices to ensure adequate cash flows for future investment and to stem the value erosion of dollars held in their national treasuries. Speculative investment in oil as an asset class in general, or specifically as a hedge against the falling dollar, may account for some portion of these increases, but speculative dollars may be more likely to account for the velocity of oil price moves because speculators participate in the oil market as both buyers and as sellers. NYMEX data reveal that net non-commercial long positions have fluctuated significantly in recent months, possibly reflecting shifts in investor sentiment in response to troubling signs of global economic slowdown.

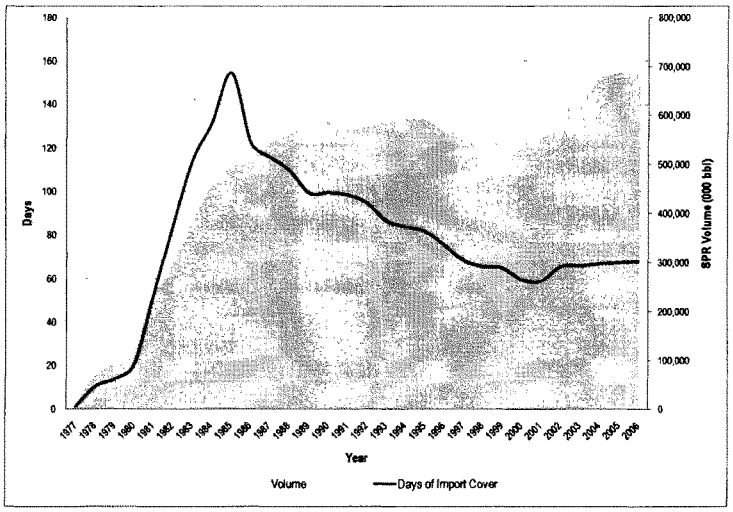
Though they may have garnered considerable attention in recent months, speculators aren't the only players in the oil markets. Commercial buyers of crude oil cannot operate their businesses without stable supply. This inflexibility inspires refiners to bid higher prices for oil at times of greatest perceived supply risk, a behavior that accelerates in many commodity markets when capacity utilization rises above about 90%. Production headroom of 3 million barrels per day in an 86 million barrel per day market suggests the global oil system is running at a capacity utilization of about 96.6%, well past the theoretical "danger point". In spite of this, commercial crude oil inventories remain at five-year average levels. Were it not for one particularly well-conceived U.S. energy policy action taken decades ago by this Congress, commercial buyers of crude oil might face strong incentives to bid considerably more than $120 per barrel for future supply and to hoard as much oil as they could purchase in their commercial inventories. That policy action was the creation of the Strategic Petroleum Reserve.

The Strategic Petroleum Reserve and Oil Price

The creation of the SPR in 1977 provided the U.S. and its International Energy Agency (IEA) partners with meaningful protection against supply interruptions and insured against the threat that an unanticipated oil shortage might cripple the U.S. and global economies in the same fashion as the shortages that followed the 1973 Arab oil embargo and 1979 Iranian Revolution. The SPR conveys meaningful *implicit* economic benefits, as well. Although the SPR is not an instantaneous failsafe – it can take between days and weeks to deploy SPR oil to refiners around the nation – I would suggest that U.S. drivers may benefit on an ongoing basis from lower prices because refiners assured of durable future supplies can operate at lower inventory and working capital levels. The realistic prospect that the world's largest petroleum consumer will remain well-supplied in the event of a supply shock may also discourage predatory market behaviors including hoarding and "gouging" by commercial and non-commercial speculators alike.

One measure of the SPR's utility—the number of days of import coverage (storage levels divided by imports)—has declined recently, as presented in the graph below. This generally reflects that U.S. import dependency and consumption have risen together since the early 1990s as low oil prices deterred investment, conventional basins declined and U.S. transportation use of crude increased with household wealth.

Strategic Petroleum Reserve Absolute Levels (000 bbl) and Days of Import Cover, 1977 – present



Source: FBR Research using data from the U.S. Department of Energy

With great humility, I would submit that forecasts of oil prices and supply interruptions are difficult under any circumstances. Most price forecasts employ relatively simple numerical models that incorporate linear regressions against past relationships between prices and factors believed to affect supply and demand. The same is true for academic and industry studies of supply interruptions. Dramatic price changes in the absence of significant supply interruptions may diminish the value of historical comparables in assessing policy and market possibilities, particularly as it is difficult to derive the precise extent to which multiple contributing factors like refinery capacity constraints, currency depreciation and overseas demand growth may bias the historical relationship between demand cover and market price.

In my professional capacity as an analyst who serves Wall Street asset managers, I build my projections of potential price effects from political, economic and geopolitical events with probability-weighted scenario analyses – essentially, describing potential outcomes and making informed judgment of the odds that any outcome might occur. A similar methodology might best serve the goals articulated in the Chairman's invitation letter.

Scenario Analysis: Fill, Suspend or Draw Down?

Scenario #1: Continuing "royalty-in-kind" fill at 70,000 barrels per day or a higher level. The high acquisition price of crude oil for commercial and strategic reserves might provoke one of two obvious responses: either it's too expensive to add oil to storage at $117 per barrel, or $117 per barrel is a "price signal" that suggests imminent supply risk and should encourage public and private entities to fill their reserves. While I take the latter view, I recognize that this view is neither universal nor politically popular at a time when so many of the nation's most economically fragile drivers are struggling to make ends meet.

In any case, I believe the appropriate mechanism for determining whether the Secretary of Energy should fill the SPR at current prices should be the level of import cover – measured in *days* – that may be needed to insure the nation against prevailing supply risk, not an absolute volume of *barrels* in storage. I would suggest that this threshold level should rely upon an informed assessment of the scale and duration of possible supply interruptions. Some supply risks may have short durations. For example, an Iranian export embargo might last days or weeks before economic reality might force one or both sides to capitulate. Other crises could conceivably endure sustained intervals. Repairing damage from a terrorist attack on the processing facility at al-Abqaiq in Eastern Saudi Arabia, for example, might require months.

While I do not consider myself a qualified judge of whether 65-70 days' import cover represents a suitable safeguard for the U.S. economy, I would suggest that any assessment should err on the side of caution. Commercial refiners of crude oil make similar determinations based on their expectations of future demand. Refiners who run out of oil can go out of business, lose customers or suffer diminished equity valuations in the capital markets. Industrial economies that run out of oil will face tremendous economic hardship.

Scenario #2: Suspending 70,000 barrel/day royalty-in-kind SPR fill. Non-OECD economies account for the vast majority of recent growth in global oil demand. Any consideration of SPR fill policy should also examine why these economies are using so much oil.

Part of the reason appears to derive from U.S. consumption itself. Our trade partners use energy to meet our demand for goods and services. In turn, wealth transfer from U.S. buyers to overseas sellers enables greater oil consumption within export economies, an effect exacerbated in markets where exporters' currencies are stronger than the dollar because this diminishes the pain of rising oil prices. A recession could conceivably shift one or both sides of this consumption function. Recent history suggests that a sustained recession might diminish demand by between 300,000 and 400,000 barrels per day. This is considerably less demand response than the 2.5 million barrels per day of demand destruction between 1979 and 1981, but the U.S. economy uses oil differently today. In the 1970s, oil supplied much more of the primary energy used for manufacturing, home heating and electricity generation. My analysis suggests that between 800,000 and 1.2 million barrels per day of Chinese oil consumption directly service U.S. consumer demand. Over time, a sustained U.S. recession might lead to declining Chinese crude demand, or demand growth, as exporters direct wares

towards other markets and eventually slow their production. The magnitude of this "echo" could add up to as much as 250,000 barrels per day.

Another driver of non-OECD demand growth may have more to do with politics than economics. The governments of highly polarized, collectivist, or politically concentrated societies often subsidize energy consumption in order to keep the peace and to stay in power, blunting price signals that might encourage conservation. These governments cannot prop up petroleum profligacy forever, but more than $1.5 billion per day in oil revenues can buy a lot of goodwill. Absent a recession that slows growth in export economies, these nations might quickly absorb 70,000 barrels per day with little or no resulting price effect visible to the broader market.

The expectations of non-commercial traders may not shift significantly in response to a 70,000 barrel per day supply change, either, particularly if plans to suspend the SPR fill are clearly articulated and widely anticipated. 70,000 daily barrels represents less than one tenth of one percent of global headroom, far less than the 6.6% change in global spare capacity that might theoretically assuage the concerns of the most conservative commercial buyers and far less than the scale of last week's disruption in Nigeria, which took 169,000 barrels per day offline. As a result, I would suggest that suspending the SPR fill might do very little to diminish the volatility and uncertainty that encourage speculation.

Scenario #3: Drawing down the SPR. When natural disasters and wars interrupt oil supply, sales from the SPR provide a buffer against the possibility domestic demand will exhaust available inventories. I would expect that an opportunistic drawdown of the SPR to influence prevailing oil prices would be likely, at least initially, to produce a meaningful price response, particularly if it undercuts the expectations of the futures market because it happens with little or no fanfare. On the other hand, the resulting price effect might quickly fade over time for two reasons.

First, commercial and non-commercial traders could begin to factor maximum achievable volumes of SPR oil (about 4.5 million barrels per day) into their price expectations. In this context, not only would the U.S. government become, effectively, just another "upstream" supplier of oil to the global market, but investors might begin to respond to any slowdown in SPR sales by bidding up crude futures contracts the same way they do today in the event of an unanticipated supply interruption or OPEC announcement of tighter production quotas.

Second, to the extent that global demand could not readily absorb new oil volumes, OPEC producers might react to dramatic price effects by slowing their rate of production. For the short term, OPEC could conceivably withdraw as much as 1.0 to 1.5 million barrels per day from global supply, and perhaps more if producers feared that oversupply might cause prices to plummet below the minimum price targets required to fully fund their domestic economies.

If OPEC did reduce quotas to defend prices, even in the event that practical considerations prevented the cartel from reducing output by more than one million barrels per day, I would

not expect long-term price expectations to change fundamentally. Maximum SPR flows could continue for little longer than five months before U.S. safety margins would be exhausted and OPEC market power would be even greater. During that time, global capacity utilization might fall from 96.6% to 92%, (below), but demand might also conceivably increase as commercial buyers augmented inventories in anticipation that SPR volumes might be exhausted.

Simplified Representation of Maximum SPR Flow Under Static Demand Assumptions

	Global Demand (MMBbl/d)	Global Supply (MMBbl/d)	Global Spare Capacity (MMBbl/d)	Total Global Capacity	Global Capacity Utilization %
Current Supply-Demand Balance (simplified)	86	86	3	89	96.6%
Maximum SPR Flow		4.5			
Possible OPEC Response		-1	1		
Resulting Supply-Demand Balance	**86**	**89.5**	**4**	**93.5**	**92.0%**

Source: FBR Research

Even if small, discretionary SPR draws could produce durable price responses, it's not clear that the resulting change in crude oil price would procure social benefits that sufficiently offset the social costs of spending down the insurance policy against a serious supply interruption. Let me offer an example for discussion purposes. EIA Administrator Guy Caruso provided the Senate Energy and Natural Resources Committee with his estimate that an incremental 100,000 barrels of oil might produce a $2 price reduction. Taking the extremely unlikely assumption that this relationship remains constant on a linear basis, 350,000 barrels of daily SPR flows would result in about $7/barrel in oil price reductions. Assuming a 10% refining margin, $7/barrel would reduce wholesale gasoline prices from about $3.06/gallon to about $2.88/gallon, or approximately the same amount as a suspension of the $0.184/gallon federal gasoline surcharge. On the other hand, discretionary draws would also create new questions that would require careful examination. Is 350,000 barrels per day a fair trade for $0.18 per gallon? At what price reduction should SPR sales end? At what level of import cover should SPR fills resume, irrespective of price? And how should SPR sales proceed in the event that an economic slowdown fundamentally shifts demand downward and reduces oil prices?

Conclusion

The nation's Strategic Petroleum Reserve is a strategic success that should endure despite the tactical challenges of rising crude oil and petroleum-derived transportation fuel prices, particularly as these challenges continue to weigh upon every stratum of the U.S. economy. Because oil products fuel 97% of the world's vehicles, high oil prices have the potential to make virtually every economic activity more expensive. Inflationary pressures are already impairing profitability and raising end-user prices within transportation-intensive sectors like agriculture, aviation and logistics. If oil prices remain long enough at historic highs, transportation costs are likely to inflate end-user prices for all commercial enterprises that rely on global supply chains for their raw, intermediate and finished goods. On a national average basis, if latest-available home heating, electricity and gasoline costs continued for twelve months at current levels, the cost would add up to as much as 11% of disposable personal income, a burden that would weigh disproportionately upon lower-income families, long-distance drivers and small businesses with significant fuel requirements. The unfortunate implication is that U.S. oil demand may continue to slow as a function of consumer and business hardship.

There may be a silver lining to this gloomy prognosis, however, owing to the architecture of the oil markets and the interdependencies of global trade. Any fundamental respite from high prices resulting from demand contraction could send non-commercial traders rushing for the exits, potentially bringing a faster-than-anticipated decline in oil and oil products prices. Likewise, the untoward eventuality of weaker economic conditions in Europe could pressure oil prices on two fronts. Not only would weaker oil demand further expand global spare capacity, but a weaker Euro could reverse some of the currency effects on crude prices at the same time.

Perhaps most importantly, I believe the long-term implications of today's high oil and products prices will shape consumer behaviors well into the next decade. This presents an opportunity for this Committee to continue to support the virtues of conservation, environmental stewardship and energy efficiency. I am optimistic that this and future congresses will continue to build upon the foundation of energy security established by the laudable, new automobile efficiency standards within the Energy Independence and Security Act of 2007 by pairing still greater efficiency gains with ongoing, responsible, domestic crude oil production.

Mr. Chairman, this concludes my prepared testimony. Thank you again for the opportunity to be here today. I will look forward to any questions at the appropriate time.

Kevin Book
Senior Vice President, Senior Analyst, Energy Policy, Oil & Alternative Energy
FBR Capital Markets Corporation

FBR Senior Analyst Kevin Book forecasts and interprets domestic and global economic and policy trends likely to impact energy sector investments. In addition, Mr. Book forecasts crude oil prices and covers a broad spectrum of environmental policy and alternative energy issues, including alternative power, alternative and renewable fuels and greenhouse gas regulation. Annually, Mr. Book's team publishes a comprehensive predictive analysis of U.S. and international energy policies and likely economic implications.

Mr. Book holds an M.A. in law and diplomacy from the Fletcher School of Law and Diplomacy and a B.A. in economics from Tufts University.

* * *

Addressing Rule XI Clause 2(g)(4) of the United States House of Representatives, relating to Procedures of Committees and Unfinished Business, Kevin Book has not been the recipient of any federal grants or contracts during the current fiscal year or either of the two preceding fiscal years.

The CHAIRMAN. Thank you so much, and thank you for bringing what you learned at Tufts about cocktails and energy policy——

[Laughter.]

The CHAIRMAN [continuing]. To this hearing. They are an excellent metaphor.

And our final witness is Dr. Frank Rusco. He is the Acting Director of Natural Resources and Environment for the Office of the Government—the Government Accountability Office. He has been with the GAO for 10 years and managed teams on wide ranges of issues in the energy field.

We welcome you, sir. Whenever you are ready, please begin.

STATEMENT OF FRANK RUSCO

Dr. RUSCO. Thank you. Mr. Chairman, Mr. Sensenbrenner, and members of the Committee, I am pleased to be here today to discuss how to reduce the cost of filling the Strategic Petroleum Reserve, as well as reduce the effect that filling the Reserve is currently having on oil prices.

The Reserve now contains just over 700 million barrels of light oil and has about 27 million barrels of available capacity that DOE is currently planning to fill in the near term. DOE has also been directed to create and fill an addition about 300 million barrels of capacity. With the price of light oil recently hitting almost $120 per barrel, this expansion could easily run into the tens of billions of dollars.

Taking barrels of oil off the market to put in the Reserve puts upward pressure on prices. However, there is no consensus on the magnitude of that effect, and GAO does not have a position on that.

In my testimony, I will discuss things DOE can do to reduce the cost of expanding the Reserve and to improve its effectiveness during oil supply shocks. I will also suggest something DOE could do in the near term to achieve both these goals while reducing whatever upward pressure on light oil prices it currently is putting.

First, DOE has not, but should, put heavier grades of oil in the Reserve, because, (a) many U.S. refineries run most efficiently using heavier oil than what is currently in the Reserve, and (b) heavier oils are cheaper than light oils.

Second, DOE should put fewer barrels of oil into the Reserve when oil prices are high and more when prices are low. This would save a great deal of money, and with record oil prices currently, there is no time like the present to act on this.

DOE could achieve both of these goals by immediately swapping some of the light oil in the SPR for heavier oils. This would allow DOE to expand the size of the Reserve at lower cost, because each barrel of light oil can be traded for more than a barrel of heavier oil, and it would also improve the SPR's effectiveness in the event of an oil supply disruption.

Finally, it would have a dampening effect on the price of these light oils by putting them on the market now rather than taking them off. To elaborate on these points, our work indicates that about 40 percent of all crude oil used by U.S. refineries is heavier than what is currently in the Reserve.

Many U.S. refineries run most efficiently using these heavier oils, and, in practice, this means that during an oil supply disruption many U.S. refineries would have to operate below capacity if they used oil from the Reserve. This loss in capacity would reduce supplies of gasoline and diesel and exacerbate the economic effects of an oil supply disruption.

DOE should put fewer barrels into the Reserve when prices are higher and more when prices are lower. One way to do this is to buy a constant dollar amount of oil each month rather than buying a constant number of barrels. This approach, commonly referred to as dollar cost averaging, is very similar to what many of us do when we put steady monthly contributions into our 401(k) plans.

Going forward, our simulations show that because oil prices are typically volatile, using a constant dollar approach would save money as DOE adds to the Reserve, whether oil prices are generally rising or falling.

DOE could get heavier oils into the Reserve by immediately using the agency's existing authority to swap some of the Reserve's light barrels for heavier barrels. DOE did a reverse swap in 1998 when it traded the only heavy oil it had—about 11 million barrels—for eight million barrels of light oil.

If DOE swaps some light oil for heavy starting in the near term, it would have three main effects. First, it would get heavier barrels into the Reserve, which is itself a desirable goal. Second, DOE could fill the remaining capacity at lower cost because a barrel of light oil trades for more than a barrel of heavy oil. And, third, swapping light for heavier barrels would put more light oil on the market now when light oil prices are as high as they have been in, well, recent history.

To conclude, the Strategic Petroleum Reserve protects our economy from oil supply shocks. It has been useful in the past, such as in the aftermath of Hurricanes Katrina and Rita. Currently, the Reserve holds about 56, 58 days of net oil imports, but it will have to grow to maintain the same level of protection, if demand for oil continues to rise.

However, we have a large reserve now that can protect the economy from any but the most extreme supply disruptions. This allows us some flexibility to be smarter about how we add oil to the Reserve. Our work shows that several billion dollars could be saved, and the Reserve made more efficient by putting heavier oils into the Reserve as soon as possible and by buying less when prices are higher and more when prices are lower.

Both of these goals could be achieved in the near term if DOE used its authority to swap light for heavier barrels, and this would take pressure off the record light oil prices we are currently facing.

Thank you. This completes my oral statement. I will be happy to answer any questions you may have.

[The prepared statement of Dr. Rusco follows:]

United States Government Accountability Office

GAO

Testimony

Before the Select Committee on Energy Independence and Global Warming, U.S. House of Representatives

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STRATEGIC PETROLEUM RESERVE

Improving the Cost-Effectiveness of Filling the Reserve

Statement of Frank Rusco, Acting Director
Natural Resources and Environment

GAO-08-726T

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Highlights

Highlights of GAO-08-726T, a testimony before the Select Committee on Energy Independence and Global Warming, U.S. House of Representatives

Why GAO Did This Study

The Strategic Petroleum Reserve (SPR) was created in 1975 to help protect the U.S. economy from oil supply disruptions and currently holds about 700 million barrels of crude oil. The Energy Policy Act of 2005 directed the Department of Energy (DOE) to increase the SPR storage capacity from 727 million barrels to 1 billion barrels, which it plans to accomplish by 2018. Since 1999, oil for the SPR has generally been obtained through the royalty-in-kind program, whereby the government receives oil instead of cash for payment of royalties on leases of federal property. The Department of Interior's Minerals Management Service (MMS) collects the royalty oil and transfers it to DOE, which then trades it for oil suitable for the SPR.

As DOE begins to expand the SPR, past experiences can help inform future efforts to fill the reserve in the most cost-effective manner. In that context, GAO's testimony today will focus on: (1) factors GAO recommends DOE consider when filling the SPR, and (2) the cost-effectiveness of using oil received through the royalty-in-kind program to fill the SPR.

To address these issues, GAO relied on its 2006 report on the SPR, as well as its ongoing review of the royalty-in-kind program, where GAO interviewed officials at both DOE and MMS, and reviewed DOE's SPR policies and procedures. DOE provided comments on a draft of this testimony, which we incorporated where appropriate.

To view the full product, including the scope and methodology, click on GAO-08-726T. For more information, contact Frank Rusco at (202) 512-3841 or ruscof@gao.gov.

April 2008

STRATEGIC PETROLEUM RESERVE

Improving the Cost-Effectiveness of Filling the Reserve

What GAO Found

To decrease the cost of filling the reserve and improve its efficiency, GAO recommended in previous work that DOE should include at least 10 percent heavy crude oils in the SPR. If DOE bought 100 million barrels of heavy crude oil during its expansion of the SPR it could save over $1 billion in nominal terms, assuming a price differential of $12 between the price of light crude oil and the lower price of heavy crude oil, the average differential over the last five years. Having heavy crude oil in the SPR would also make the SPR more compatible with many U.S. refineries, helping these refineries run more efficiently in the event that a supply disruption triggers use of the SPR. DOE indicated that, due to the planned SPR expansion, determinations of the amount of heavy oil to include in the SPR should wait until it prepares a new study of U.S. Gulf Coast refining requirements. In addition, we recommended that DOE consider acquiring a steady dollar value—rather than a steady volume—of oil over time when filling the SPR. This "dollar-cost-averaging" approach would allow DOE to acquire more oil when prices are low and less when prices are high. GAO found that if DOE had used this purchasing approach between October 2001 through August 2005, it could have saved approximately $590 million, or over 10 percent, in fill costs. GAO's simulations indicate that DOE could save money using this approach for future SPR fills, regardless of whether oil prices are trending up or down as long as there is price volatility. GAO also recommends that DOE consider giving companies participating in the royalty-in-kind program additional flexibility to defer oil deliveries in exchange for providing additional barrels of oil. DOE has granted limited deferrals in the past, and expanding their use could further decrease SPR fill costs. While DOE indicated that its November 2006 rule on SPR acquisition procedures addressed our recommendations, this rule does not specifically address how to implement a dollar-cost-averaging strategy.

Purchasing oil to fill the SPR—as DOE did until 1994—is likely to be more cost-effective than exchanging oil from the royalty-in-kind program for other oil to fill the SPR. The latter method adds administrative complexity to the task of filling the SPR, increasing the potential for waste and inefficiency. A January 2008 DOE Inspector General report found that DOE is unable to ensure that it receives all of the royalty oil that MMS provides. In addition, we found that DOE's method for evaluating bids has been more robust for cash purchases than royalty-in-kind exchanges, increasing the likelihood that cash purchases are more cost-effective. For example, in April 2007, DOE solicited two different types of bids—one to purchase oil for the SPR in cash and one to exchange royalty oil for other oil to fill the SPR. DOE rejected offers to purchase oil when the spot price was about $69 per barrel, yet in the same month, DOE exchanged royalty-in-kind oil for other oil to put in the SPR at about the same price. Because the government would have otherwise sold this royalty-in-kind oil, DOE committed the government to pay, through foregone revenues to the U.S. Treasury, roughly the same price per barrel that DOE concluded was too high to purchase directly.

Mr. Chairman and Members of the Committee:

We are pleased to be here today to participate in the Committee's hearing on the Strategic Petroleum Reserve (SPR). Congress authorized the SPR in 1975 to protect the nation from oil supply disruptions following the Arab oil embargo of 1973 and 1974 that led to sharp increases in oil prices. The federal government owns the SPR, and the Department of Energy (DOE) operates it. The SPR currently has the capacity to store up to 727 million barrels of crude oil in salt caverns in Texas and Louisiana. As of April 21, 2008, current inventory of the SPR stood at 701.3 million barrels of oil, which is roughly equivalent to 58 days of net oil imports. DOE made direct purchases of crude oil until 1994, when purchases were suspended due to the federal budget deficit, and in fiscal years 1996 and 1997 approximately 28 million barrels of oil were sold to reduce the deficit. Since DOE resumed filling the SPR in 1999, it has obtained oil from the Department of the Interior's Minerals Management Service (MMS) "royalty-in-kind" program. Through this program, the MMS receives oil instead of cash for payments of royalties from companies that lease federal property for oil and gas development. MMS contracts for some of this royalty oil to be delivered to designated oil terminal locations or "market centers" where DOE takes possession. Because the royalty oil often does not meet SPR quality specifications, and because the market centers can be distant from SPR storage sites, DOE generally awards contracts to exchange royalty oil at the market center for SPR-quality oil delivered to SPR facilities. Obtaining oil for the SPR through the royalty-in-kind program avoids the need for Congress to make outlays to finance oil purchases, but the foregone revenues associated with using royalty-in-kind oil to trade for SPR oil imply an equivalent loss of revenue because MMS would otherwise sell the oil and deposit the revenues with the U.S. Treasury. Interior estimates that the forgone revenue attributable to using the royalty-in-kind program to fill the SPR were $4.6 billion from fiscal year 2000 through fiscal year 2007.

The Energy Policy Act of 2005 directed DOE to increase the SPR storage capacity to 1 billion barrels and to fill it "as expeditiously as practicable without incurring excessive cost or appreciably affecting the price of petroleum products to consumers."[1] It required DOE to select sites to expand the SPR's storage capacity within 1 year of enactment, by August 2006. On February 14, 2007, Secretary of Energy William Bodman designated three sites for the expansion, including a 160 million barrel facility in Richton, Mississippi, an 80 million barrel expansion of a facility in Big Hill, Texas, and a 33 million barrel expansion of a facility in Bayou Choctaw, Louisiana. In its June 2007 SPR plan, DOE anticipated these expansions would begin in fiscal year 2008 and be complete in 2018.[2,3] DOE also indicated that it would prefer to continue using the royalty-in-kind program to fill the additional storage capacity. DOE estimates the capital cost for the SPR expansion at approximately $3.67 billion, and estimates the cost of operating and maintaining the expanded portion of the SPR at $35 to $40 million per year.

As DOE begins to expand the SPR, past experiences may help inform future efforts to fill the SPR in the most cost-effective manner. In that context, our testimony today will focus on: (1) factors we recommend DOE consider when filling the SPR, and (2) the cost-effectiveness of using oil received through the royalty-in-kind program to fill the SPR.

To address these issues, we are summarizing work from our August 2006 report on the SPR and our ongoing review of the royalty-in-kind program.[4] For our

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[1]Pub. L. No. 109-58 (2005). The Energy Policy and Conservation Act, Pub. L. No. 94-163 (1975), created the SPR and authorized storage of up to one billion barrels of petroleum products.

[2]DOE, Office of Petroleum Reserves, *Strategic Petroleum Reserve Plan: Expansion to One Billion Barrels* (Washington, D.C.: June 2007).

[3]In his State of the Union speech on January 23, 2007, President Bush proposed expanding the SPR further to 1.5 billion barrels. Secretary of Energy William Bodman indicated that DOE's goal was to have this expansion completed by 2027.

[4]GAO, *Strategic Petroleum Reserve: Available Oil Can Provide Significant Benefits, but Many Factors Should Influence Future Decisions about Fill, Use, and Expansion*, GAO-06-872 (Washington, D.C.: Aug. 24, 2006).

August 2006 report, we contracted with the National Academy of Sciences to convene a group of 13 industry, academic, governmental, and nongovernmental experts to collect opinions on the impacts of past SPR fill and use and on recommendations for the future. We also reviewed records and reports from DOE and the International Energy Agency. In addition, for our ongoing review of the royalty-in-kind program for this committee and others, we identified and reviewed applicable laws and documentation on DOE policies and procedures for evaluating SPR purchase and exchange bids, and interviewed officials at both Interior and DOE. We have also drawn upon previous GAO reports on the royalty-in-kind program.[5] We conducted our work on this testimony from January to April 2008 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

In summary:

- To fill the SPR in a more cost-effective manner, we recommended in previous work that DOE include in the SPR at least 10 percent heavy crude oils, which are more compatible with many U.S. refiners and generally cheaper to acquire than the lighter oils that comprise the SPR's volume. DOE indicated that, due to the planned SPR expansion, such determinations should wait until it prepares a new study of U.S. Gulf Coast heavy sour crude refining requirements. In addition, we recommended that

[5]GAO, *Royalties Collection: Ongoing Problems with Interior's Efforts to Ensure a Fair Return for Taxpayers Require Attention*, GAO-07-682T (Washington, D.C.: Mar. 28, 2007).

GAO, *Mineral Revenues: Cost and Revenue Information Needed to Compare Different Approaches for Collecting Federal Oil and Gas Royalties*, GAO-04-448 (Washington, D.C.: Apr. 16, 2004).

GAO, *Mineral Revenues: A More Systematic Evaluation of the Royalty-in-Kind Pilots is Needed*, GAO-03-296 (Washington, D.C.: Jan. 9, 2003).

DOE consider acquiring a steady dollar value of oil over time and allowing oil companies more flexibility to defer delivery of royalty-in-kind exchanges to the SPR when prices are likely to decline in return for additional deliveries in the future. In updating us on the status of this recommendation, DOE indicated that its November 8, 2006, rule on SPR acquisition procedures addressed our recommendations; however, this rule does not specifically address both how to implement a dollar-cost-averaging strategy and how to provide industry with more deferral flexibility. In subsequent comment, DOE noted that the November 8, 2006, acquisition procedures do not address dollar-cost-averaging, but they do address flexibility of purchasing and scheduling in volatile markets.

- Filling the SPR with oil purchased in cash is likely to be more cost-effective than filling the SPR through the royalty-in-kind program for several reasons. For example, the royalty-in-kind program adds a layer of administrative complexity to the task of filling the SPR, increasing the potential for waste or inefficiency. Moreover, DOE has evaluated the cost of cash purchases more thoroughly than exchanges, increasing the likelihood that cash purchases are more cost-effective. For example, in May 2007, DOE rejected cash purchases for the SPR, concluding that the current price of about $69 per barrel was unusually high. However, in the same month, DOE entered into contracts to exchange royalty oil, effectively committing the government to pay—through foregone revenues to the U.S. Treasury—about the same price for oil that it concluded was too high to purchase directly. In November, DOE entered into another exchange contract when oil was about $96 per barrel.

DOE Could Improve the Cost-Effectiveness of Filling the SPR

To decrease the cost of filling the SPR and improve its efficiency, we have recommended in our previous work that DOE: (1) include at least 10 percent

heavy crude oil in the SPR, (2) consider acquiring a steady dollar value of oil, and (3) consider allowing oil companies additional flexibility to defer deliveries in exchange for delivering additional barrels of oil at a later date. The current composition of the SPR is entirely of medium to light grades of oil.[6, 7] Including heavier oil in the SPR could significantly reduce fill costs because heavier oil is generally less expensive than lighter grades. We recommended in our August 2006 report that DOE, at a minimum, implement its own recommendation made in a 2005 study to have at least 10 percent heavy oil in the SPR.[8] In addition, we found that DOE may have underestimated how much heavy oil should be in the SPR to minimize oil acquisition costs. Therefore, we further recommended that DOE examine the maximum amount of heavy oil that should be held in the SPR. To illustrate the potential magnitude of savings from including heavy crude oil in the SPR, we have done some simple calculations. If DOE included 10 percent heavy oil in the SPR as it expands to 1 billion barrels, that would require DOE to add 100 million barrels of heavy oil, or about one-third of the total new fill. From 2003 through 2007, Maya—a common heavy crude oil—has traded for about $12 less per barrel on average than West Texas Intermediate—a common light crude oil. If this price difference were to persist over the duration of the new fill period, DOE would save about $1.2 billion in nominal terms by filling the SPR with 100 million barrels of heavy oil.[9] The savings could be even larger if DOE included more than 10 percent heavier oils in the SPR. Alternatively, DOE could add heavy oil to the SPR by exchanging the light oil in one or more of the caverns for heavier oil. DOE has the legal authority to exchange one type of oil for another and has

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[6]For information on the composition of the SPR, see: DOE, Office of the Assistant Secretary for Fossil Energy, *Strategic Petroleum Reserve: Annual Report for Calendar Year 2006.*

[7]The weight of oil is measured by its gravity index. According to DOE's EIA, light oil is greater than 38 degrees gravity, while intermediate oils, such as those in the SPR, are 22 to 38 degrees gravity.

[8]See DOE, Office of the Deputy Assistant Secretary for Petroleum Reserves, *Strategic Petroleum Reserve Crude Compatibility Study* (December 2005).

[9]This calculation is intended to illustrate the magnitude of potential savings, and is not meant to be a projection of actual savings. The actual price difference between light and heavy oil over the course of the new fill could be smaller or larger than over the past 5 years, which would either reduce or increase the savings, respectively.

done so before. For example, in 1998, DOE exchanged 11 million barrels of heavy crude oil stored in the Bryan Mound site for 8.5 million barrels of other higher value light crude oil.

Including heavier oil would have the additional benefit of making the composition of SPR oil more compatible with U.S. refineries. In recent years, many refiners in the United States have upgraded their facilities so they can process heavy oil. Our analysis of DOE's Energy Information Administration (EIA) data shows that, of the approximately 5.6 billion barrels of oil that U.S. refiners accepted in 2006, approximately 40 percent was heavier than that stored in the SPR.[10] Refineries that process heavy oil cannot operate at normal capacity if they run lighter oils. For instance, DOE's December 2005 found that the types of oil currently stored in the SPR would not be fully compatible with 36 of the 74 refineries considered vulnerable to supply disruptions. DOE estimated that if these 36 refineries had to use SPR oil, U.S. refining throughput would decrease by 735,000 barrels per day, or 5 percent, substantially reducing the effectiveness of the SPR during an oil disruption, especially if the disruption involved heavy oil. To improve the compatibility of SPR oil with refineries in the United States, the DOE study concluded that the SPR should contain about 10 percent heavy oil. However, our August 2006 report found that DOE may have underestimated how much heavy oil should be in the SPR to maximize compatibility with refiners. We also found DOE may have underestimated the potential impact of heavy oil disruptions on gasoline production. Several refiners who process heavy oil told us that they would be unable to maintain normal levels of gasoline production if forced to rely on SPR oil as currently constituted. For example, an official from one refinery stated that if it exclusively used SPR oil in its heavy crude unit, it would produce 11 percent less gasoline and 35 percent less diesel. Representatives from other refineries

[10]According to DOE's EIA, heavy oil has a gravity index of 22 degrees or below. According to EIA 2006 data, about 10 percent of the oil accepted by U.S. refiners has this gravity index and are considered heavy oils. An additional 30 percent of oil accepted by U.S. refiners was 22 to 30 degrees gravity, however, according to DOE, all oils stored in the SPR range from approximately 30 to 37 degrees gravity.

told us they might need to shut down portions of their facilities if they could not obtain heavy oil. For these reasons, we recommended that DOE conduct a new review of the optimal oil mix in the SPR and determine the maximum volume of heavy oil that could be effectively put in the reserve.

In addition, we recommended that DOE consider filling the SPR by acquiring a steady dollar value of oil over time, rather than a steady volume of oil over time as has occurred in recent years. This "dollar-cost-averaging" approach would allow DOE to take advantage of fluctuations in oil prices and ensure that more oil would be acquired when prices are low and less when prices are high. In our 2006 report, we found that if DOE had used this approach from October 2001 through August 2005, it could have saved approximately $590 million in fill costs. We also ran simulations to estimate potential future cost savings from using a dollar-cost-averaging approach over 5 years and found that DOE could save money regardless of the price of oil as long as there is price volatility, and that the savings would be generally greater if oil prices were more volatile.

We also recommended that DOE consider allowing oil companies participating in the royalty-in-kind program more flexibility to defer their deliveries to the SPR at times when filling would significantly tighten the market or when prices are expected to decline.[11] In return for these deferrals, companies would provide additional barrels of oil when they resumed deliveries. DOE has already approved some delivery deferrals at companies' requests, such as during the winter 2002-2003 oil workers' strike in Venezuela. From October 2001 through August 2005, DOE received an additional 4.6 million barrels of oil for the SPR valued at approximately $110 million as payment for these delivery deferrals. However, DOE has denied some deferral requests and experts have noted that there is room to expand the use of deferrals. Experts noted DOE would need to exercise its authority to deny deferrals at times when it is in the national interest.

[11]For example, this situation could occur if futures prices are lower than current prices. Futures prices of oil reflect the cost of delivery at a specified place, price, and time in the future.

Nonetheless, given that the SPR currently holds roughly 58 days of net imports, we believe there is sufficient inventory for some flexibility in allowing deferrals.

In updating us on the status of recommendations we made to DOE in our August 2006 report, DOE indicated that its November 8, 2006, rule on SPR acquisition procedures addressed our recommendations on dollar-cost-averaging and deferrals. However, the new acquisition rule does not specifically address our recommendations to study both how to implement a dollar-cost-averaging strategy and how to provide industry with more deferral flexibility. Unless DOE addresses and adopts these recommendations, it will not be filling the reserve in the most cost-effective manner. As to our recommendation on the optimal mix of oil in the SPR, DOE indicated that, due to the planned SPR expansion, such determinations should wait until it prepares a new study of U.S. Gulf Coast heavy sour crude refining requirements. We believe the SPR expansion offers DOE an ideal opportunity to change the SPR's oil mix to include heavier oils that are less costly to acquire and better match U.S. refining capacity. We look forward to DOE completing its new study of U.S. Gulf Coast heavy crude refining requirements and believe such a study will find that DOE should include more than 10 percent heavier oils in the SPR.

Purchasing Oil to Fill the SPR May Be More Cost-Effective Than Current Royalty-in-Kind Program

There are several reasons that purchasing oil—as DOE did until 1994—may be more cost-effective than filling the SPR using the current royalty-in-kind program. For instance, there may be fewer bidders for the royalty oil under the current exchange system than a direct cash purchase system, which in turn may limit competition and the exchange deals that DOE can negotiate. In the exchange process, a single company must be able to and interested in both accepting oil at the designated market centers and delivering other oil with specific characteristics to the SPR. This may limit the number of companies interested in

bidding on exchange contracts. In contrast, if DOE purchased oil, many additional companies may be interested in selling their oil, increasing competition and lowering prices.[12] In 2007, the then Deputy Assistant Secretary for Petroleum Reserves, who directed activities of the SPR, told us that he agrees with this reasoning. The inherent limits of exchanging versus direct purchases are compounded by the fact that DOE and Interior have not systematically analyzed where to send royalty oil in a way that maximizes the value of the exchanges. The value of exchanges is a function of both the costs to deliver oil to market centers and the deals that DOE can negotiate at particular market centers. The informal process that Interior and DOE currently use to identify market centers does not systematically analyze the tradeoffs between these two factors to identify market centers that optimize net value to the government.

In addition, royalty-in-kind exchanges add a layer of administrative complexity to the task of filling the SPR, increasing the potential for waste or inefficiency. In a January 2008 report, the DOE Inspector General concluded that DOE does not have an effective control system over receipts of royalty oil from Interior at the market centers.[13] Specifically, the Inspector General found that DOE did not have adequate controls to ensure that the volumes of oil that contractors reported to have received from Interior at the market centers matched scheduled deliveries. As a result, DOE did not have assurance that it received all of the oil that Interior shipped, raising concerns that DOE may not have received its full entitled deliveries to the SPR. If DOE purchased all of its oil, it would no longer need to exchange oil at designated market centers and would not need to coordinate with Interior. Moreover, rather than diverting a fraction of the oil collected through the royalty-in-kind program to fill the SPR, Interior could sell that fraction in competitive sales, as it currently does for the other oil it receives through the

[12]We note that including heavier oils in addition to lighter oils would also increase the number of potential suppliers of oil for the SPR.

[13]DOE Office of Inspector General, *Audit Report: Department of Energy's Receipt of Royalty Oil*, DOE/IG-0786 (Washington, D.C.: Jan. 2008).

royalty-in-kind program. A senior Interior official said that selling the royalty oil would be simpler for Interior to administer than the current exchanges.

Further, DOE's method for evaluating bids is more robust for cash purchases than royalty-in-kind exchanges, increasing the likelihood that cash purchases are more cost-effective. In November 2006, DOE issued a final rule that describes how DOE will evaluate offers when it is purchasing oil and when it is exchanging royalty oil for other oil for the SPR.[14] This rule provides DOE with considerable flexibility in the degree of analysis it can conduct when evaluating offers, and, in practice, DOE's method for evaluating bids for cash purchases has been more robust than it has for exchanges. For example, in April 2007, DOE solicited two different types of bids—one to purchase oil for the SPR in cash and one to exchange royalty oil for other oil to fill the SPR.[15] In deciding whether to purchase oil, DOE evaluated the bids it received in the context of overall market trends. It concluded that the offers it received from sellers were priced too high, in part because the price of oil was generally high and because the prices of the specific type of oil DOE sought to purchase were unusually high relative to other oil types. As a result, DOE rejected offers to purchase oil when the spot price for Light Louisiana Sweet (LLS)—a commonly used benchmark for Gulf Coast oil—was about $69 per barrel and decided to delay purchasing any oil until at least the end of the summer driving season.[16] In contrast, DOE's method for evaluating bids for exchanging royalty oil focused on whether the oil DOE would receive would be at least the same value as the oil it would exchange. It did not include an analysis of whether overall market conditions indicated that it would be more profitable for the federal government to stop or delay exchanges and have Interior sell the royalty oil for cash instead. In this case, in the same month, DOE entered into royalty oil exchange contracts when the spot price of LLS was about $67 a barrel,

[14]10 C.F.R Part 626.

[15]DOE's solicitations to purchase oil were part of a plan to replace 11 million barrels of SPR oil that DOE sold in the fall of 2005 after Hurricane Katrina disrupted refinery supplies.

[16]The spot price reflects the price for immediate settlement of oil purchases.

effectively committing the government to pay—through foregone revenues to the U.S. Treasury—roughly the same price for oil that DOE concluded was too high to purchase. Moreover, in November, it awarded additional exchange contracts when the spot price of LLS had reached $96 a barrel.[17]

It should also be noted that the current exchange method is less transparent than direct purchases because the primarily cash-based federal budget does not account for noncash transactions. Interior estimates that the royalty-in-kind program cost the federal government in total foregone revenue $4.6 billion from fiscal year 2000 through fiscal year 2007. This foregone revenue was not reflected in the federal budget since no federal cash flows were involved. Congressional budget decisionmakers therefore have not had the opportunity to consider whether the value of the transferred oil could be reallocated to other competing resource needs.

Importantly, the royalty-in-kind effort to fill the SPR creates, essentially, a "blind spot" where neither DOE nor Interior, the two agencies responsible for running the joint program, systematically examines whether exchanges of millions of barrels of royalty oil have been a cost-effective approach to filling the reserve. DOE does conduct a prospective analysis to estimate whether the value of the oil it will receive in the exchanges will be at least as valuable as the royalty oil it will exchange. However, DOE enters into exchange agreements that can last 6 months, and DOE's initial estimates of the values of the different oil types may not hold over the duration of the contracts. DOE has not analyzed any of the completed exchanges to determine whether those exchanges performed as well

[17]By itself, the spot price does not determine how many barrels of oil the government will receive through royalty exchanges. Rather, this is determined by the relative value—the price of the grade of oil that DOE has to exchange (the oil it receives from Interior) versus the price of the grade of oil that it wishes to exchange for. This means that the government could receive the same number of barrels of SPR oil through its exchanges when spots prices are low or high. However, from a broader federal perspective, it would be more cost-effective if the federal government deferred royalty exchanges when oil prices were high and sold the royalty oil for cash. It could then purchase oil when oil prices were lower, acquiring more of the desired grade of oil for the same amount of money.

as expected. Similarly, when evaluating the performance of the royalty-in-kind program overall, Interior does not analyze whether the royalty oil transfers to DOE are a cost-effective means to fill the reserve.[18] The 60.7 million barrels of oil that Interior transferred to DOE from fiscal year 2004 to 2005 accounted for 58 percent of all the royalty-in-kind oil that Interior collected during that time. While Interior reports to Congress each year on the financial performance of its royalty-in-kind program, these reports have not included a measure of the cost-effectiveness of using royalty oil to fill the SPR.

Conclusions

Because the SPR has reached sufficient size to address near-term supply disruptions, decisions about future fill practices can be made in a more flexible, cost-effective manner without unduly hurting our ability to respond to such disruptions. With oil prices recently exceeding $117 a barrel, there should be greater interest in finding ways to reduce fill costs. If it is to reach its goal of filling the expanded SPR by 2018, DOE will have to, in some combination, purchase or receive through royalty-in-kind transfers roughly 300 million barrels of oil. Our work shows that substantial cost savings could be achieved through increased purchasing of heavy oil, a dollar-cost-averaging purchasing strategy, more flexibility in the timing of oil purchases and deliveries, and greater attention paid to the opportunity costs of filling the SPR with royalty oil. Based on our past estimates of the cost savings potential of dollar cost averaging and the significantly lower cost of heavier oils, DOE could save well over 10 percent of the costs of filling the SPR to the currently authorized level—an amount that is likely well in excess of $1 billion. During this era of dire national long-term fiscal challenges, it is all the more important that DOE make fill decisions in a cost-effective manner.

[18]Interior does, however, have procedures in place to ensure that it pays a reasonable rate to transport oil from the offshore federal leases, where the oil is produced, to the market centers where DOE takes possession of the oil.

Mr. Chairman, this concludes my prepared statement. I would be pleased to respond to any questions that you or other members of the Committee may have at this time.

GAO Contact and Staff Acknowledgements

For further information about this testimony, please contact me, Frank Rusco, at 202-512-3841 or ruscof@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this statement. Contributors to this testimony include Ben Bolitzer, Chase Huntley, Heather Hill, Michael Kendix, Jon Ludwigson, Tim Minelli, Michelle Munn, Alison O'Neill, G. Greg Peterson, and Barbara Timmerman.

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The CHAIRMAN. Thank you, Dr. Rusco, very much.

The chair now turns to recognize himself for a round of questions.

Right now, OPEC and Big Oil have a weapon aimed at the heart of the American economy. We are seeing its effects in the failure of airlines. We are seeing its effects in the impact on truckers across our country. We are seeing its impact on the dramatic rise in the price of fuel, and we are going to see its effect on a continuing basis on the decline in the American economy.

The Strategic Petroleum Reserve was constructed in order for the President to use it as a counterweapon in order to say to the world's oil market that we are serious about not allowing Big Oil and OPEC to exploit a vulnerability in the American economic structure.

Ms. Kenderdine, the Bush administration thus far has refused to deploy this protective weapon which we have—the Strategic Petroleum Reserve, meant to protect businesses and consumers across our country. What, in your opinion, would be the impact if we, as a country, under the President's instructions, stopped filling the Strategic Petroleum Reserve, so that we reduce the amount of oil being taken off the world market and begin to deploy upwards of 40 million barrels of oil in the Strategic Petroleum Reserve, and made that announcement today?

Ms. KENDERDINE. The other witnesses and I have indicated it is difficult to quantify the precise amount of reduction in price that you would see. I would go back to the SPR exchange that we did in 2000. We put 30 million barrels of oil onto the market, loaned it. It wasn't a sale. We put $30 million as a loan.

And to put that in context, I think at that time the world consumption in a year is about three billion, give or take, you know, a couple hundred million barrels of oil a day—or a year. Okay. So in a three billion barrel market, we put 30 million barrels into the marketplace, and the price dropped almost $7 a barrel. And the price drop was immediate.

The price dropped before the oil moved into the marketplace and stayed—it stayed down very—that $7 per barrel for about three weeks. Then, the USS COLE was bombed in the Middle East and the price went back up. But then, it fell back down again when the markets calmed down.

The CHAIRMAN. So much of what goes on in the oil marketplace is just speculation. It is panic. It is exploitation of an out-of-control sense that the price is just going to go up and up and up with no stop.

So to you, Mr. Berry, would the trucking industry, would truckers across the country like to see our President stop filling the Strategic Petroleum Reserve and send a signal to OPEC that we are going to deploy the Strategic Petroleum Reserve as a way of signaling that we are not going to stand still and allow our economy to suffer this grievous injury that will have negative effect on truckers, on consumers, and on industries all across the country?

Mr. BERRY. Yes.

The CHAIRMAN. You would like to see that.

Mr. BERRY. Yes.

The CHAIRMAN. Expand.

Mr. BERRY. Mr. Chairman, we have made that request of the administration, that they stop filling the Strategic Petroleum Reserve. We don't know precisely what that impact would be, but I think even the mere threat of doing that may have an impact on the speculators. And it just seems silly and ridiculous to me at this time of high prices for us to be adding such a small quantity.

And I see very little risk to our nation in stopping—to stop filling. I mean, what is the worst that could happen? Prices don't go up, so then you resume filling? I mean, I see very little risk in the strategy to stop filling the Reserves.

The CHAIRMAN. So this environment in which we are living right now is one where we are buying high, at the very peak of the market. The American people, through the Bush administration, are buying oil at $119 a barrel, and at the same time that we should be selling our oil into the global marketplace, to say to the OPEC countries, to say to the oil companies, "This is not going to last."

And those speculators will in fact receive that message very quickly, and, in my opinion, respond and the consumers will start to see the benefit in the marketplace. Do you agree with that, Mr. Berry?

Mr. BERRY. Mr. Chairman, that is the hope, that that is precisely what would happen.

The CHAIRMAN. Aren't we, Dr. Rusco, at the worst of both worlds right now? We are wasting taxpayer money, and we are raising prices to consumers at the pump simultaneously.

Dr. RUSCO. Our findings are that you could reduce the cost of filling the Reserve by adopting this practice of putting heavier barrels in there. And if you did that right now with swapping, whatever the effect on the price is, if you swap light barrels out now for heavier barrels, and more of them later, you would alleviate that immediate effect on the price. We do not know what the actual magnitude of that would be.

The CHAIRMAN. Thank you, Dr. Rusco.

The chair recognizes the gentleman from Arizona, Mr. Shadegg.

Mr. SHADEGG. Thank you, Mr. Chairman. In the memo we have from staff, it notes that the Department of Energy is currently filling the SPRO at the rate of 70,000 barrels a day, and it proposes to increase that in August—I find that timing curious—to 76,000 barrels a day. Can anybody explain to me why, at least during a portion of the high driving season, we would increase the fill rate? Does anyone—I know there isn't a DOE witness. Does that make sense to anybody? I will have to ask DOE. Okay.

Mr. BERRY. Mr. Shadegg, I would just add to that that not only is that the peak driving season for people going on vacation, students returning to school, but it is also when the economic activity starts to rise. All of your Christmas, fall shipments start going and the trucking activity is actually picking up then. So any activity that would cause fuel prices to rise during that time would not be good.

Mr. SHADEGG. It is the peak trucking industry or trucking time for the Christmas shopping.

Mr. BERRY. It is the advent of the peak.

Mr. SHADEGG. Well, that means we ought to put more oil in right then. I guess I will have to ask DOE about that.

Dr. Rusco, I am fascinated by your proposal that by swapping heavy—I guess it is swapping light for heavy we could have a positive effect. Is it your testimony that that could have an effect not just on—in terms of beneficially filling the SPRO, but also in terms of the price of oil? And would it have a consequent effect on the price of gasoline?

Dr. RUSCO. Yes. We have advocated—long advocated—the introduction of heavy oil into the SPR, because it would make it more effective, you know, in the event of a supply disruption. It has also been considerably less expensive. It has—over the last five years, heavy oil has averaged over $12 a barrel less than light oil. So you could fill the Strategic Reserve more cheaply by adding heavier oil and make it more effective.

And, once again, if you did that with a swap where you swapped light oil now for heavier oil in the future, you would be selling essentially light oil out of existing caverns. When they are empty, then you would go and buy heavy oil to fill it. That would have an immediate effect on light oil prices currently. And, again, I don't know the magnitude of that effect.

Mr. SHADEGG. I find the idea fascinating. The next question is, so—you keep saying, "We advocate this." Who is resisting it? And why? And what are the reasons?

Dr. RUSCO. Well, we have recommended that the DOE study the maximum amount of heavy oil they could put in. They agree that they should put heavy oil in in the amount of at least 10 percent. But so far, to our knowledge, they have no intention of doing so until they expand beyond the current level.

Mr. SHADEGG. I would be happy to join you and maybe talk further. Maybe some of us in Congress need to talk to them and get answers from them why they are not doing that.

Mr. Book, you mentioned that speculation can in fact be a part of the current high gas prices. One of the issues at least that Mr. Berry has raised and the trucking industry is concerned about is that if we were to at least stop filling the SPRO, or perhaps even release some oil from the SPRO, we could drive down—we could drive out that speculation and maybe have a consequent impact on the price of gasoline.

I have heard it said that the price of gasoline is 20 to 40 percent higher than it would be but for the speculation. First question is: do you agree that there is a possibility that we could have that effect? And, second, are we also driving speculation by locking up a great deal of the supply that is potentially available in the United States, in the inner mountain west, on the outer continental shelf, in Alaska, and elsewhere, and saying, "Well, it is there, but we are never ever going to go get it." Is that also driving speculation?

Mr. BOOK. Congressman, 70,000 barrels per day is a small amount relative to the global market. It is possible it could have an effect, but it is certainly not anything like the effect of a sale that has been described, nor is it anything like the effect—to your second question—that would be immediately signaled if you were to open up some of the off-limits areas, because we have the best oil production technology in the world. We have the best information management technology in the world.

We are really a very capable economy. I suspect the market would take a look at our intent to produce some of our own reserves and take it very seriously. On the other hand, to be fair, the effect of that production hitting the market is 7 to 10 years away from the go decision.

Mr. SHADEGG. But speculators are in fact speculating out into the future. So that——

Mr. BOOK. There is contracts all the way out to 2016 right now that would probably start to change shape on the basis of that decision, yes.

Mr. SHADEGG. Is there anything else—since I think every member of this panel, Republican and Democrat alike, wants to do what we can do to deal with the spike in gas prices right now, is there anything else you would suggest?

Mr. BOOK. Well, the idea of tax holidays is a symbolic move and a dangerous one. I think the hard part is swallowing the bitter medicine and trying to encourage consumers to learn more about ways they can save energy on a daily basis.

Mr. SHADEGG. We are doing that. Thank you very much.

The CHAIRMAN. Okay. The gentleman's time has expired.

The chair recognizes the gentleman from California, Mr. McNerney.

Mr. MCNERNEY. Thank you, Mr. Chairman. We have heard a lot about how the SPR manipulations can impact the market. But what I would like to know is: are there computer models out there, and how sophisticated they are, how much collaboration there is, how much validation there is. In other words, when market manipulations occur, are the models validated? Can anyone answer that question? Mr. Book, you are probably in the best position.

Mr. BOOK. Well, there are certainly very sophisticated oil traders who use computer models to try to predict market activity. In terms of my own models, my models as a Wall Street analyst tend to be simple and, based on my current oil price estimates, inadequate. So I would humbly say that it is very tough to do any kind of simulation of that much activity with that many players and that many variables, and any model, no matter how sophisticated, may not be truly reliable.

Mr. MCNERNEY. Do you have an opinion, Ms. Kenderdine.

Ms. KENDERDINE. I am sorry.

Mr. MCNERNEY. Do you have an opinion on that?

Ms. KENDERDINE. MIT has no models that is looking at the level—the granularity that you are talking about or would need in that kind of a—to make that kind of a determination. It is very difficult to do. I think Wall Street is the most appropriate place. They are paying the most attention.

Mr. MCNERNEY. Well, then, basically what we have heard is all speculation. I mean, look at—the SPR would look like a spring in a mechanical system. It can make it—it can smooth it out, but it can also make it more unstable. So, I mean, it seems to me that we ought to have a fairly sophisticated market. Maybe someone in the University of Chicago or——

Ms. KENDERDINE. Or MIT. [Laughter.]

But the activity and what we are seeing—and we do have historical data about the use of the SPR. And the—I went through and

had a price graph, looked at when we went to war in Iraq and we released oil into the market—first time, not second time, because we didn't do it the second time.

Looked at when we put the SPR oil—the exchange we did in 2000 and Katrina, and you see an immediate decline in price on that graph. So, historically, we do know of the impacts of using the SPR.

You can also look at the graph and see prices go up when OPEC takes certain actions. So we are informed by what we know from the past, and certainly traders are looking at these issues constantly. But it is not necessarily transparent what OPEC countries are up to or, you know, it is meant to not be transparent.

Mr. BOOK. Congressman, could I——

Mr. MCNERNEY. Yes.

Mr. BOOK. The historical comps are the best we have. They are also a different world. Globalization was still in its late childhood, pre-adolescence. We have had a lot of changes in the currency relationships between the dollar and other currencies, and it is hard, with the narrower head room in global capacity and a different dollar, to take those as apples to apples. They are a good place to start. I would start there, too.

Mr. MCNERNEY. Should we be looking in the Congress at commissioning a modeling of this phenomenon? Yes?

Mr. COOPER. The one thing we should do is—the lack of transparency in OPEC is one thing. There is not a lot we can do about that. The lack of transparency on our commodity markets is something we can do about it. We made a huge mistake in 2002 when we modernized the Commodities Future Trading Commission—Exchange Commission and failed to extend oversight to energy markets. And so now we have a complete lack of transparency in the trading of energy commodities and futures on the over-the-counter markets.

We have had a series—a continuous series of cases brought and settlements signed about abusive markets. And we are told that the most sophisticated model that ever existed about these markets was Enron's model. And, of course, Enron said, you know, it is supply, it is this, it is that, the other thing, and it was cheaters. And we have had plenty of court cases.

So if we want to learn about what is going on in these markets, we—and Congress passed in the ag bill last year a law that would have closed the Enron loophole. The President vetoed it for all kinds of other reasons, and we are struggling to get that back in. If you want transparency, you need to have the Commodities Future Trading Commission overseeing these markets.

They told us they had enough power, and then we had the effort to corner the gas market with AmerEn, and a whole series of things they don't know. We simply don't know who trades what in this most important commodity. That is the single most important thing you could do to fix the financial speculation problem.

The CHAIRMAN. Great. The gentleman's time has expired.

The chair recognizes the gentleman from Connecticut, Mr. Larson.

Mr. LARSON. Thank you, Mr. Chairman.

And thank you, Mr. Cooper. I couldn't agree more with what you have to say. A colleague of ours, Bart Stupak, has a bill as well called the PUMP Act that would do just that. I believe the GAO, even in its recent study, came out and said the CFTC, while it does have regulatory authority, doesn't seem to have the broad exuberance needed or required to be able to look at and peel away, especially when it comes to the over-the-counter market, these unregulated activities.

Let me ask first, Dr. Book—excuse me, Dr. Rusco, and then Mr. Book—whether or not you feel that that would better help in terms of transparency the initiative that would be required, as my grandfather Nolan would say—to trust everyone but cut the cards?

Dr. RUSCO. I am going to have to answer that for the record. That was done in a team outside the energy group, and I would hesitate to offer an opinion without first reviewing that report.

Mr. LARSON. Well, if you could get back to them, and, as part of GAO, I would love to get that, Mr. Chairman, for the record.

The CHAIRMAN. Without objection, it will be included.

Mr. LARSON. It also brings up a point that—and I think several—I think it was Mr.—the Chairman or Mr. Blumenauer might have mentioned that the largest consumer of energy of course is the Federal Government.

And that being the case, if the Federal Government were to say, with regard to speculation, that the procurement of oil, the procurement of petroleum for the entire federal system is not subject to speculation, that you have to actually receive, be a recipient, in order to be a trader in those areas, what would that do to the price of oil? Would either of you care to respond?

Mr. BOOK. I mean, Congressman, it sounds like that proposal would take a substantial volume of oil off market and put it into a time contract between the buyer and the seller. And by reducing the available supply to the market, you might raise the price with a proposal like that.

Mr. LARSON. Well, it is in the market currently. If we are purchasing X amount already, but it is subject to the prices driven up by speculation, why, if you eliminated the speculators, would it cost the Federal Government more? And if it cost the Federal Government less, would we be able to, therefore, release the Strategic Petroleum Reserve or purchase more in a way that would be able to assist our truckers and everybody else throughout the economy?

Mr. BOOK. I mean, the idea makes sense. The problem is finding a seller who will tie a contract at a time of high prices and say, "Yes, I will tie it—lock this in" with uncertainty and volatility and scarcity on the horizon.

Mr. LARSON. Yes. But if all we are hearing from our oil executives is that the laws of supply and demand and volatility, and yada, yada, yada, no longer apply, then what does it leave policy decisionmakers with? And if we have unregulated markets that have no transparency, and small businesses and oil dealers saying that it is a fraud and a sham and nothing more than, you know, a charade that is going on that causes our prices to go up, while the people, as you pointed out, were concerned on making the money on paper based on a declining value of the dollar and other

volatility or other arguments that they may make, and call that the marketplace. Isn't that——

Mr. BOOK. Well, increased transparency is always good for markets. Also, cautious small moves are generally good for markets, particularly when there is a lot of capital in circulation. I would agree that any move you can make to try to increase accountability, without increasing the transaction cost—and that is sort of the flip side of it. The more you regulate something the more expensive it becomes to trade on that regulated exchange.

And this is a global world. Trade can go elsewhere. So you have to balance the two.

Mr. LARSON. Well, I am all in favor of balancing the two, but perhaps Ms. Kenderdine could answer.

Ms. KENDERDINE. Transparency is terrific for markets. The only concern I have is that 80 to 90 percent of the world's oil reserves are controlled by national oil companies or OPEC. And so you can have transparency in U.S. markets and on our producers. You are only going to have a very small picture of what is actually going on in global oil markets.

So it is just a caution that I would put out there is that there is not transparency in the rest of the world, and you will only get a small slice of what is actually going on. And we actually, when I was at DOE—there is also not transparency on oil data in general, including demand data. And we launched an effort to try and improve data worldwide, so that we could have a better understanding from a government policy perspective. Very difficult thing to do.

Mr. LARSON. I see my time has expired, Mr. Chairman, but I thank you.

The CHAIRMAN. The gentleman's time has expired.

The chair recognizes the gentlelady from South Dakota, Ms. Herseth Sandlin.

Ms. HERSETH SANDLIN. Thank you, Mr. Chairman.

Dr. Rusco, I think in response to some of the questions of Mr. Shadegg and the recommendations as it relates to more cost effective ways of filling the SPR, he discussed with you the whole issue of heavier versus lighter crude into the SPR. I would like to ask you about the employment of the dollar cost averaging that you discussed. Why isn't that recommendation being employed?

Dr. RUSCO. I don't know why. It clearly makes sense. We did simulations that estimated the value of dollar cost averaging, when prices were generally rising but volatile, generally falling but volatile, or staying generally flat but volatile. And as long as there is volatility in prices, you can, on a month-to-month basis save money, and essentially fill the SPR at the same rate that you want. You just have to pick the right target for the number of dollars.

You would have to adjust that target periodically, because you don't know where prices will be in the future. But there are potentially billions of dollars to be saved as you expand the SPR.

Ms. HERSETH SANDLIN. Are you aware of any specific opposition to employing this method when making purchases?

Dr. RUSCO. I think that the primary opposition is that the DOE has essentially used royalty-in-kind oil only to fill the—or almost exclusively to fill the SPR, and——

Ms. HERSETH SANDLIN. Since when, 1999? Later than——

Dr. RUSCO. Yes. Since about 1999, yes. And the problem with that is that there is no real coordination between DOE and DOI in terms of how to do that. They could—you could still use royalty-in-kind oil and adopt a dollar cost averaging approach. You would just—DOI would deliver fewer barrels when prices are high, and they would sell the remainder of the RIK barrels in the market and deliver more barrels when the price is low. And you could still do it, but it may be a lack of coordination or a lack of imagination.

Ms. HERSETH SANDLIN. Most likely, I would think you are right on that. We have seen a lot of lack of coordination between agencies. And if we can save dollars, we appreciate your insight today as we address these issues further.

Dr. Cooper, your written testimony notes on page 6 that there is a "disastrous shortfall in domestic refining capacity, and the refinery shortfall has doubled to over 300 million barrels per day since the early 1990s." To what factors do you attribute the increase in refining capacity shortfall over that period of time, and what do you think would be the optimal increase in domestic refining capacity over the next five years?

Mr. COOPER. Well, the cause of the lack of capacity is clear. The industry has not provided it. If you look back through the early 1990s, the Clean Air Act amendments were passed in 1990. They went into effect in 1995. And the industry engaged in a series of strategic decisions about what to do, and the central strategic decision was to reduce refinery capacity.

The decision was made not to upgrade certain refineries to meet the Clean Air Act. Decisions were made and mergers were allowed to go forward, which dramatically slashed the number of refiners. So we are down—and you know the names—Exxon Mobil, Chevron, Texaco, BP, ARCO, Amoco, Conoco Phillips. All of those companies once were separate, and now they are one.

And so clear decisions made throughout the 1990s about how to tighten the market—there is a very good RAND study which showed a complete change in behavior. They no longer compete for market share on price. And over that time period, we have seen the shortfall increase from about a million and a half barrels a day to three million barrels a day.

Refinery profits have gone through the roof. So this is the outcome of a policy of shorting the market—the strategic underinvestment in domestic refining. And every price spike we have had in the last six or seven years, except this most recent one, was always triggered by some complaints about, oh, we didn't have enough capacity. They couldn't even do spring cleaning, switching over from winter fuels to summer fuels, without it.

So the answer is—I believe Dingell and Stupak had a bill in that started to talk about a domestic refinery reserve, operating these refineries to meet military needs in normal times, and diverting capacity to serve the market. The oil industry will not build enough refineries in this country.

Ms. HERSETH SANDLIN. My time is almost up. So in addition to the Dingell-Stupak bill, just an optimal increase over the next five years, what would you say? I mean, optimal.

Mr. COOPER. It would be wonderful. How are you going to make them do it? The oil industry won't do it. You will haul them up here, and they will tell you why they are not going to build any more refineries. You cannot depend on the oil industry to meet our refinery needs.

The CHAIRMAN. The gentlelady's time has expired.

The chair recognizes the gentleman from Washington State, Mr. Inslee.

Mr. INSLEE. Thank you. While listening to the testimony, I was reminded of what we went through on Enron, which was a learning experience. And I remember a time where we had a Northwest delegation go meet with Vice President Dick Cheney to beg the administration help us take some action in response to what was going on with prices going up through the roof on electricity.

And what we told the Vice President was that there was obviously some "imperfections in the market," some manipulation going on, we didn't have adequate oversight over speculation and manipulation. And we told him that one-third of all the power was turned off, sort of similar to the refinery situation Dr. Cooper talked about, at that time while prices were going up 1,000 percent. He looked at us and he said, "You know what your problem is? You just don't understand economics."

And we did. I suggest that they did not. And we got absolutely taken to the cleaners on the West Coast while the administration sat on its hands and did nothing. And I think that is reminiscent of what we are having here, listening to this testimony, where there is an abject lack of action to respond to this in any way.

And I just don't believe we are totally helpless in the face of what is going on in the economy. There are these underlying tensions, but there are things we can do, and, frankly, we are not doing them because the administration will not use tools at its disposal, nor help us to respond.

I want to talk about a longer term issue. We have talked about the short-term issue. I want to talk about a longer term. Ms. Kenderdine talked about the need for research and development dollars to really develop a post-carbon based economy. That might be my term rather than Ms. Kenderdine's, but that is the way I think of it.

And I wonder if you can just go in a little greater depth what you view as the shortfall in research and development to develop non-carbon based fuel systems, fuels and fuel systems. I alluded to these electric cars that are now starting to hit the road.

Could you just tell us what you think is in the realm, should be in the realm of the scope of our ambition in research and development to wean ourselves off of being so oil and gas dependent?

Ms. KENDERDINE. The reason I used the numbers on the challenge is because they—the magnitude of the need, the magnitude of the requirements is—needs to be well understood. And, you know, we are talking—we are not talking about telephones, widgets, etcetera, in terms of innovation. We are talking about a major commodity-based industry, has a 40-year—its infrastructure has a 40-year life span.

And we are facing right now under business-as-usual carbon emissions a catastrophic event by 2050, beyond the doubling of CO_2

emissions in the atmosphere, if we do not do something and do something now. As I mentioned, the infrastructure value that we are going to have to turn over in the next 40 years is $12 trillion. We have significant challenges. We have to go from 80 percent carbon-based fuels to—and I agree with you, a carbon-free, carbon light.

I would say perhaps carbon light is kind of the interim that we are going to have to support in order to get to those goals. And by carbon light, I would say sequestration is going to be critical in order for us to get there, as well as natural gas, because it produces so much fewer greenhouse gas emissions.

But the—and we have done modeling on this at MIT. Incredible gains in reductions of CO_2 emissions and efficiency technologies, both—and that is in part a deployment issue. But we need biofuels, obviously, we need alternative—we need—quite frankly, we need nuclear in order to get there.

And so the R&D investments are—and I said we have $5 to $6 billion total investment, U.S. Government and industry in the U.S., to turn over a $12 trillion infrastructure.

Mr. Inslee. And what should be our national goal as far as R&D? What is a reasonable R&D figure we should be shooting at in the next several years?

Ms. KENDERDINE. Right now, the Department of Energy on its applied energy R&D programs—and I set aside the Science Office, because while it is doing basic research, energy research, it is not strategic research, it is research for research sake, for knowledge sake.

We are only spending maybe $3 billion a year in energy R&D. I think a doubling of that is absolutely essential. I think also a carbon price is essential, and I know that the Congress is debating the carbon price. We can put a price on carbon. We still don't have the technologies to produce affordable renewable energy at this point, so we need the research.

So a combination of an increase in R&D, much more focused R&D, I think we need to do it better than we have done in the past. And a carbon price is, I believe, critical. And I would double the R&D budget.

Mr. INSLEE. Thank you.

The CHAIRMAN. The gentleman's time has expired.

The chair recognizes the gentleman from Oregon, Mr. Blumenauer.

Mr. BLUMENAUER. Thank you. Thank you, Mr. Chairman.

I would just like to clarify. Do any of you feel that there is any question but that we should regulate petroleum and gasoline through the commodities future trading market? Any of you disagree with that proposition?

Ms. Kenderdine. I am not sure I would use the word "regulate." Certainly oversight on the part of the CFTC is——

Mr. BLUMENAUER. But they are included within the regime.

Ms. KENDERDINE. Yes, yes, yes.

Mr. BLUMENAUER. Is there any reason to exclude them any longer?

Dr. RUSCO. Again, I cannot comment on that. I don't want my silence to be viewed as——

Mr. BLUMENAUER. Okay. GAO exception noted. [Laughter.]

But——

Mr. BERRY. I would just say that the trucking industry I don't think has considered specifically that point. As one member of the trucking industry, it seems reasonable to me—the proposal.

Mr. BLUMENAUER. Mr. Berry, I appreciate that. Would it be possible to check with your association about running it through the trap line and see where they are? Because——

Mr. BERRY. Yes.

Mr. BLUMENAUER [continuing]. They are a pretty big player in this game.

Mr. BERRY. Yes. We will get back to you.

Mr. BLUMENAUER. Thank you. I appreciate it. And I must say that I do appreciate the comprehensive nature of your testimony in particular. I have had the opportunity in recent days out campaigning in Pennsylvania, maybe not to very good effect for Senator Obama, but hearing very heart-rendering direct reactions from people who can only afford to fill up a third of the tank. And making it real I thought was very important.

And the notion that you have in terms of some specific things in terms of reducing demand, which I welcomed from ATA—the section that you had in your testimony—touching what some feel is the third rail, like, you know, should we take a look again at controlling speeds? Because we did move in that direction 30 years ago to significant effect.

And even the notion of reducing—I mean, we have had legislation. We have tried to fix this to be able to help, what, APUs? So that we don't have the whole rig burning expensive diesel. This is an example to me of simple, common sense items that ought to be employed in a heartbeat, that make sense, save money. Do you want to elaborate on that for a moment?

Mr. BERRY. I would be happy to. At great personal risk, I will tell you that it is our association's position that there should be a 65 mile an hour speed limit, and that that would save a tremendous amount of fuel. And I would venture to say that it would probably save as much as 10 percent of our annual consumption, and that is a big number.

Our own company has reduced our speed in December from 65 to 64 miles an hour, and our trucks are governed so that we can set it with a computer. And then, here three weeks ago in response to the high price of fuel, we reduced our speed even further to 62 miles an hour. Now, we did that at great risk because there is a shortage of truck drivers, and we felt as though we might be disarming unilaterally in the war to attract truck drivers.

But our drivers all understood the need, they see the $4 price at the truck stops, and they willingly voluntarily reduce the speed, and we have had wonderful compliance. They get it. They know this is a huge problem, and they were on board with it.

But anti-idling—Representative Inslee talked about research and development. There are a lot of common sense solutions coming from the users, and the users are left out of all of these equations. And I think that the users need to be included in the research and development.

There are trucking companies that are coming up with fabulous ideas, common sense solutions, and those should be incorporated. Anti-idling—we are looking at battery-powered. We can't get the battery-powered to work, because the cabs need to be better insulated. So we are all out there experimenting with ways to better insulate the cabs.

EPA's Smart Way Program is a fabulous program that has looked at different technologies, has put it out on the internet, so truckers can see what works, what doesn't work, and that has been a huge service. Those are all examples of things that can be done.

Mr. BLUMENAUER. I appreciate that. I appreciate, as I say, the comprehensive testimony that you have offered up. We are working to try and fix that APU item. In the Ways and Means Committee, we have got a little glitch. But I think in toto this was extraordinarily helpful.

Mr. Chairman, I really appreciate your allowing us to come together to analyze this.

The CHAIRMAN. I thank the gentleman from Oregon.

And I thank all of our witnesses. I think this has been an extremely helpful hearing. I think it is clear from today's testimony that President Bush must deploy the Strategic Petroleum Reserve in order to send a signal to OPEC that we are going to stop begging, to send a signal to the speculators that we are going to begin to take action against them, and to send a signal to those who are afraid of the impact on the trucking industry, on the food industry, on the airline industry, and all other industries of this dramatic rise in the price of fuel, that we are not going to allow our competition here to raise the price of oil to have such a dramatic impact upon our economy.

Our poor people have to choose between fuel and food. This is not something that America should allow to happen. This is not something that President Bush should sit on the sidelines and pretend he is powerless to do something about. If President Bush can call up the Reserves over and over again to go to Iraq, he can deploy the Strategic Petroleum Reserve as a weapon against OPEC and Big Oil to protect the American consumer and American industry here at home.

I think that is clear from the testimony that we heard here today. We thank all of our witnesses for this testimony, and we hope that President Bush hears the plea of the American people.

This hearing is adjourned.

[Whereupon, at 11:41 a.m., the Committee was adjourned.]

Ali Brodsky
Chief Clerk *via e-mail:* Aliya.Brodsky@mail.house.gov
U.S. House of Representatives
Select Committee on Energy Independence and Global Warming
B243 Longworth House Office Building
Washington, DC 20515

Dear Ms. Brodsky,

Thank you for the opportunity to testify before the Select Committee on Energy Independence and Global Warming's recent hearing entitled *Pumping Up Prices – The Strategic Petroleum Reserve and Record Gas Prices.* This letter responds to your requests for additional information. The responses set forth herein represent policy positions espoused by the American Trucking Associations.

1) **Do you support having a Strategic Petroleum Reserve?** Yes. The Strategic Petroleum Reserve (SPR) serves the critical function of ensuring a readily accessible domestic reserve of crude oil to address temporary disruptions in supply and temporary market imbalances that may be influenced by releases of stored crude oil. The SPR has been useful in mitigating dramatic price spikes caused by temporary supply disruptions – or the perception of temporary supply disruptions – as occurred during the Iraqi invasion of Kuwait in 1990.

2) **Given the history of the Strategic Petroleum Reserve, what do you think constitutes an "emergency" that should trigger stopping the fill? Or accessing the reserves? If we stop filling the reserve because of prices, is it the start down a path of tapping the reserve because of prices?** The decision to stop filling the SPR and the decision to release oil from the SPR may not necessarily be grounded in the same factors. In deciding to stop filling the SPR, policy makers must consider the size of the SPR and whether the current stockpile of crude contained in the SPR is adequate for its intended purposes, as well as an evaluation of market conditions and whether the cessation of filling has the ability to influence the supply of crude or send a signal to speculators that may have driven the price of oil higher than market fundamentals of supply and demand would dictate. The decision to release oil from the SPR should be reserved for emergency situations. A dramatic unexplained rapid increase in the price of oil at a time when crude oil inventories are below market expectations should be considered an emergency situation that may be addressed by a release of oil from the SPR. We note, however, that a gradual increase in the price of oil that is based on a long term change in market fundamentals is not the type of emergency situation that can be effectively addressed through an SPR release, as the SPR does not and will never contain enough crude oil to bolster the supply of oil in the marketplace for an extended period of time.

3) **Which do you think would have a greater impact on the supply and price of gasoline, stopping the fill of the Strategic Petroleum Reserve or accessing American**

oil reserves in Alaska, the outer continental shelf and western oil shale? The use of the SPR to address market imbalances and the development of known domestic oil reserves are important aspects of U.S. energy policy that serve different purposes. The use of the SPR is only successful in addressing temporary supply disruptions or market imbalances. Whereas accessing American oil reserves in Alaska, the outer continental shelf and western oil shale are important long term solutions to the shortage of domestically produced petroleum. Increasing the domestic supply of petroleum is necessary to reduce our dependence on foreign sources of petroleum and to ensure the economic stability of energy dependent industries. Actions to increase the domestic petroleum supply take time to develop and had they been undertaken 10 years ago, the United States might not be facing the supply shortages we are facing today.

4) **Would you support suspending gas taxes to help bring down the cost of gasoline to consumers even at the risk of endangering road funding?** No. U.S. investment in highway infrastructure has fallen far short of the nation's increased demand for highway use. This lack of investment has caused deterioration in the condition of some of our nation's roadways and bridges and congestion throughout the highway system. The congestion that has resulted from our underinvestment in highway infrastructure has lead to a significant, unnecessary increase in the amount of fuel we consume, additional mobile source emissions of both carbon and criteria pollutants, and lost productivity due to significant transportation delays.

5) **Market speculation has been blamed for increases in oil prices. Do you think that changes to the SPR would improve that situation or would speculation continue?** Changes to the SPR policy will not in and of itself eliminate speculation in the energy markets. The cessation of filling the SPR sends an important signal to speculators that the federal government recognizes a problem has materialized in the petroleum markets and is willing to look at all the available tools at its discretion to address the problem. The CFTC has taken an important first step in acknowledging its market oversight responsibilities to curb manipulation and fraud in the energy markets. Congress should thoroughly review the current authority of the CFTC to oversee petroleum markets to determine if additional steps need to be taken to ensure that these markets continue to serve their legitimate purposes.

6) **After adjusting for inflation, U.S. average gasoline prices in 2006 were lower than the average annual prices consumers paid in the period 1978 to 1982 and during the 1930s. Do you believe that recent price levels have been shocking primarily because consumers enjoyed unusually low gasoline prices for over a decade from 1986 to 1999?** No. The dramatic run-up in petroleum product prices, including gasoline and diesel, is the result of a confluence of factors. First, there has been an increase in demand for petroleum primarily from the rapid growth in China and India, but also from increased demand among Europe and the Persian Gulf countries. In addition to its rapid economic growth, China has increased its consumption as a result of the severe

earthquake, which took traditional power generation facilities off line, and its petroleum supply buildup in preparation for the Olympics. Second, the supply of petroleum has not kept pace with the growth in demand for petroleum. U.S. domestic production has been declining and new sources of production have been placed off limits for environmental reasons, OPEC has not increased its production sufficiently, and production in Russia, Nigeria, Venezuela and Mexico has been inconsistent. Third, there is an increased risk premium on each barrel of oil. This risk premium is based upon geopolitical instability and a new found appreciation for potential supply disruptions from severe weather events. Fourth, we have borne witness to a dramatic decline in the value of the dollar. Five years ago, the dollar was at parity with the Euro. Today, the dollar is worth 60% less than the Euro. While arguably this has helped U.S. manufacturers, it has hurt U.S. consumers who have seen significant erosion in their purchasing power. Since oil is denominated in dollars, a large percentage of the increased price of oil can be attributed to the significant fall in the value of the dollar relative to other world currencies. Finally, we are unsure as to the impact that the significant increase in the amount dollars invested in the petroleum futures market is having on current prices.

7) **With the exception of the aftermath of Hurricanes Katrina and Rita, do movements in crude oil markets explain almost all of the change in gasoline prices over the period from 1999-2006?** The price of crude oil is the most significant factor influencing the price of gasoline and diesel fuels. The price of crude oil accounts for seventy percent of the price of diesel fuel. The prices of gasoline and diesel fuel also are based upon the supply and demand for these products. The supply of diesel fuel is influenced by domestic refining capacity and the desire of refineries to produce product based upon profit margins for the various refined products. Over the past decade we have experienced times where refining capacity has been less than adequate to ensure a plentiful supply of refined product, such as diesel fuel. This constraint in refining capacity has resulted in price spikes for refined product, especially if a refinery is taken off-line for maintenance or some other reason. Today, however, the domestic refining industry is only operating at only 88% of its maximum capacity. This is a result of declining margins for gasoline, which has the unintended consequence of limiting the supply of domestically refined diesel fuel. Since each barrel of oil refined yields 19 gallons of gasoline and only 8 gallons of diesel, there has been little incentive to boost diesel production as a result of high gasoline inventories. The existence of low margins on gasoline refining removes the economic incentive for refineries to increase their throughput.

8) **The changes in gasoline standards that have improved our environmental quality have also pushed up prices. Has the proliferation of "boutique fuels" had the effect of reducing the capacity of the U.S. refining industry and increasing price volatility by limiting arbitrage possibilities?** Boutique diesel fuels affect the fungibility of fuel across state lines. They are typically produced by only a small number of refineries, which insulates these refineries from competition and allows them to work on higher profit margins than they would in a purely competitive marketplace. Boutique fuels also

exacerbate temporary product shortages by preventing the transfer of fuel from neighboring jurisdictions to address supply imbalances. As such, these temporary imbalances result in price spikes that last longer than necessary and are harmful to consumers. Boutique fuels have not reduced the capacity of the U.S. refining industry. Each refinery is configured to maximize yields of a specific gasoline formulation. For this reason, the move to eliminate boutique fuels must occur in a manner that allows refiners to retool their plants in an orderly fashion to prevent supply disruptions.

9) **Is there a compromise area where we could slow rather than stop the fill for the purpose of helping to bring down price?** The primary benefit in stopping the filling of the SPR is to show speculators that the government is serious about addressing the issue of high fuel prices. We do not believe that slowing the SPR fill rate will have a material impact on the actual supply of oil in the marketplace.

10) **Do you think the price of oil could realistically fall below $50 per barrel for 90 days? Do you think this too stringent of a requirement to start the fill again if it were temporarily stopped?** Increasing the supply of oil combined with initiatives to reduce demand, strengthen the dollar and curb speculation in the oil futures market could result in a significant reduction in the price of crude oil. We do not have sufficient information to quantify the impact upon price impact that these initiatives would have.

11) **At what price do you think consumers will take action to curb their consumption of gasoline either through cutting down on trips, taking public transportation or buying hybrid cars?** Current gasoline prices are impacting U.S. consumer demand for gasoline. It is important to realize, however, that diesel fuel and gasoline are different commodities. The trucking industry's use of diesel fuel is not discretionary. Trucks must burn diesel to deliver nearly 100% of the consumer goods in the United States. Whereas individuals may make economic decisions to purchase more fuel efficient cars or reduce the number of miles they travel, trucking companies do not consume diesel fuel on a discretionary basis – they cannot reduce the miles they travel or take public transportation while satisfying the country's need to transport freight. Higher fuel prices have impacts on the U.S. economy that may depress the demand for freight transportation services, but this type of contraction in vehicle miles traveled or tons hauled is beyond the control of the motor carrier. We also note that environmental regulations that have produced dramatic reductions in diesel engine emissions have been achieved in part through a substantial reduction in diesel engine fuel efficiency.

Over the last quarter century, line-haul trucks have averaged between 6.0 and 6.5 miles per gallon and have not witnessed any appreciable gains in fuel economy. As an illustration of our industry's fuel economy plight, new diesel engine emission standards that went into effect on October 1, 2002, resulted in fuel economy degradation of 8%. Preliminary estimates associated with the implementation of additional diesel engine emission standards that took effect on January 1, 2007, indicate a further fuel economy degradation of up to 2%.

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12) What do you think is most responsible for the rising price of gasoline? Crude oil prices? The value of the US Dollar? Supply shortages? Or something else? ATA believes that the record high price of crude oil is largely based on supply and demand fundamentals, but also influenced by other factors, including the declining value of the U.S. dollar relative to other currencies and the speculative increase in investments in the oil futures markets.

Increased global demand for oil in China, India, Europe and the Middle East nations has an influence on price, but does not fully explain the current price of crude oil. The concept of peak oil combined with a reticence to exploit known domestic sources of oil, oil shale, tar sands and coal to liquid opportunities has eroded any supply cushion that previously existed in the marketplace and will have a profound impact on whether future supplies will be adequate to meet global demand. The U.S. has more than 1.2 trillion barrels of oil – in the form of oil shale – on federal lands contained in Colorado, Utah and Wyoming; however, these resources have been declared off limits. Similarly, 80% of the Outer Continental Shelf is off limits to oil exploration.

Clearly the weak dollar has impacted the current price of petroleum. Compared to the Euro, today's dollar is worth 60% less than it was just 5 years ago. While the weak dollar has benefited U.S. manufacturers, it clearly has caused a rapid inflation in the price of oil that goes beyond the market fundamentals of supply and demand.

Finally, the dramatic in flow of capital into the oil futures markets, much of which is the result of speculative trading, has resulted in an increase in the future price of oil, which may impact the spot market price of this indispensible commodity. *See also* response to question number 6.

13) Since filling the SPR is not a new concept, do you think it has driven the cost of gasoline up over the two years? The filling of the SPR has only a minor impact on the available supply of oil. This impact, however, becomes more profound as excess supply is consumed and spare capacity is eroded on the world market.

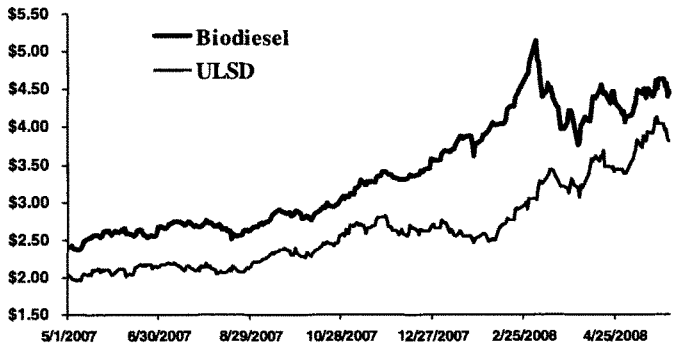
14) Won't high gasoline prices help drive down miles driven and therefore greenhouse gas emissions? Thus, if global warming is the pending calamity that many say it is, in the context of global warming, aren't high gas prices a net benefit? High gasoline prices may result in some demand erosion; however, high diesel prices will not have that same impact. The trucking industry consumes 39 billion gallons of diesel fuel each year. The consumption of diesel is not discretionary and is necessary to deliver virtually 100% of the consumer goods used in this country. The need to bring agricultural products to supermarkets, clothing to department stores, and other products to market will drive the trucking industry's consumption of diesel fuel. These necessary freight movements will result in the trucking industry's continued purchase of diesel fuel, regardless of the price of diesel. We also note that the trucking industry converted from gasoline to diesel

engines in the 1950's due to meager fuel economy of between 3.0 to 3.5 miles per gallon and higher fuel economy ratings for diesel engines. While the carbon content in diesel fuel is higher than that of gasoline, the gains achieved in improved fuel economy make diesel fuel a less carbon-intensive fuel for the trucking industry when compared to using gasoline.

15) **Do most trucking companies operate under long term contracts and do those contracts allow for fuel price increases to be passed along to their customer?** The trucking industry does not use a standardized contract for freight services. The trucking industry is dominated by small businesses, with roughly 95% of the 750,000 motor carriers operating fewer than 20 trucks. This results in a very competitive industry. Ever since deregulation, trucking companies have negotiated directly with shippers or freight brokers and there is no standard length of contract or uniform mechanism to pass fuel costs on to customers. Some trucking companies are willing to enter long term contracts with their customers, while others are not. Some trucking companies build the price of fuel into the base rates and have difficulty recouping the increased fuel expenses, while others rely on a variety of mechanisms to compute a fuel surcharge that enables the recovery of some or all of the increase in diesel fuel prices. In most cases, however, even when fuel surcharges are in place, the carrier rarely recoups 100% of the fuel cost, especially considering empty miles (i.e., the distance between the last drop off and the next pick-up) and idling time.

16) **How much do you believe the cost of fuel would go down if the SPR fill was halted? Or do you think it would just serve to stop prices from climbing?** We do not have sufficient information to quantify the impact on diesel fuel prices from the suspension of filling of the SPR.

17) **What role does bio-diesel currently play in the trucking industry portfolio? What are the problems associated and what can Congress do to help work through those issues?** Biodiesel is significantly more expensive than petroleum-based diesel. This is true even at today's record diesel prices. The following chart compares the price of biodiesel production with the wholesale price of ultra low sulfur diesel. This chart is very conservative in that it includes the $1 biodiesel blending credit and does not include the cost of transporting biodiesel to market, which adds additional expense, especially in light of the fact that biodiesel does not move by pipeline.



As mentioned above, the trucking industry is a very competitive industry. With diesel fuel now the largest expense for many trucking companies (surpassing the cost of labor), a penny per gallon is enough to influence fuel purchasing decisions. As such, few for-hire trucking companies can afford to use biodiesel, even with the $1 per gallon federal tax credit. Biodiesel also has several hidden costs for trucking companies. These include a lower energy content compared to ULSD, requiring companies to purchase more fuel to travel the same amount of miles; reduced cold weather performance, and increased maintenance requirements in the form of more frequent fuel filter changes. While these challenges are not insurmountable, they do add additional expense for trucking companies that choose to use biodiesel.

While on the subject of biodiesel, it is important to mention that state biodiesel mandates distort the competitive free market for biodiesel and result in higher prices for biodiesel consumers. In light of the recently enacted biodiesel mandate as part of the expanded federal renewable fuel standard (RFS), state biodiesel mandates are not necessary to ensure the existence of a robust biodiesel industry. The federal RFS guarantees that 1 billion gallons of biodiesel will be consumed domestically – the free market must be allowed to operate to ensure that this mandate is achieved in the most cost effective manner possible. State biodiesel mandates will distort the free market and prevent biodiesel from being consumed in those parts of the country where it is most economical to do so. Congress should preempt state biodiesel mandates as inconsistent with our national interest and efforts to promote the cost effective use of biofuels.

Finally, the quality of biodiesel has been far below what is necessary for the trucking industry to feel confident using this alternative fuel. In 2006, the National Renewable Energy Laboratory (NREL) conducted a survey of biodiesel in the U.S. market and determined that more than 65% of the biodiesel sampled did not meet the American Society of Testing Materials (ASTM) quality specifications for biodiesel. In 2007, NREL repeated its survey and found that 10% of the biodiesel produced in the U.S. failed the ASTM quality tests. While there has been a significant improvement in biodiesel quality year-over-year, a ten percent failure rate is unacceptable to the end user who will be forced to pay for the damage caused by off-spec fuel.

18) **In your statement you say that we should increase domestic oil exploration. What would you include in that list? Would you also like to see an increase coal-to-liquid fuel production?** The country faces a critical shortage of domestic oil. Today, we import over 60% of the crude oil we consume and this dependence upon foreign sources of oil is expected to worsen over the coming years as our domestic oil production continues to fall. The U.S. has petroleum resources that continue to go untapped. The U.S. must begin producing oil from the Arctic National Wildlife Reserve, the Outer Continental Shelf and from oil shale located in Colorado, Utah and Wyoming. These resources must be obtained in an environmentally responsible manner, but we can not afford to declare these resources off limits. The U.S. also must begin to exploit its vast coal reserves and convert this resource into transportation fuels. The coal-to-liquids technology is proven and has been used by South Africa for decades. While policy makers may debate the type of conditions that should be placed upon the production of coal-to-liquids fuel, steps should be taken immediately to begin to exploit this proven resource.

19) **I agree with you about increasing domestic refining capacity – what steps do you think we should take to make that happen?** Congress should consider tax incentives and streamlining the environmental permitting process to ensure that new refineries may be constructed. If the petroleum refining industry does not wish to build additional capacity, then the government must begin discussing the concept of building its own refineries on abandoned military bases or elsewhere. Although the recent increase in the price of diesel fuel has little to do with refinery capacity, prior price spikes of diesel fuel have been related to the industry's inability to refine enough product to meet demand.

20) **You mention wanting a national diesel fuel standard – do you care what the standard actually is or just that it is uniform?** A national diesel standard is important to ensure robust competition in the diesel fuel industry and to ensure fuel fungibility from state-to-state. ATA is very concerned with what the standard looks like. Trucking companies have made significant capital investments in the existing fleet. A new truck costs more than $100,000 and is a sophisticated and sensitive piece of technology that is designed to function on diesel fuel that meets the ASTM D975 standards. The failure to

use fuel meeting this standard can result in engine and emissions control device malfunctions, costly repairs, and may invalidate new truck warrantees. For these reasons, all diesel fuel sold in the United States must meet the ASTM D975 specification or another specification that is approved by engine and truck manufacturers for both new and existing trucks.

21) **On the issue of regulation of petroleum exchanges, can you tell us more about this issue?** There does not seem to be a consensus opinion on the impact that speculatorsmay be having on the price of petroleum. The huge increase in dollars invested in the petroleum futures markets and the use of exempt transactions and/or electronic exchanges that are not regulated by the Commodity Futures Trading Commission (CFTC) has led many experts to conclude that the current price of petroleum is artificially inflated and has departed from the fundamental market forces of supply and demand. While we cannot state with certainty that speculation is responsible for the recent dramatic increase in the price of crude oil, we cannot dismiss this proposition. For this reason, we believe that Congress should take steps to increase the transparency of the petroleum exchanges. At a minimum, Congress should require the CFTC to regulate the petroleum markets to the same extent that it regulates other commodity trading activities. Once this is accomplished hearings should be held to determine whether more aggressive steps are necessary to eliminate unnecessary speculation in the petroleum market while preserving the legitimate purposes that futures exchanges provide.

* * * * *

I again thank you for the opportunity to provide information to the Committee on this issue of national importance. If you have any questions concerning these responses, please contact Richard Moskowitz, ATA's Vice President and Regulatory Affairs Counsel at (703) 838-1910 or rmoskowitz@trucking.org.

Respectfully submitted,

David Berry
Vice President, Swift Transportation and
American Trucking Associations Environmental and
Energy Policy Committee Chairman

June 20, 2008

Ali Brodsky
Chief Clerk
U.S. House of Representatives
Select Committee on Energy Independence and Global Warming
By electronic mail

Dear Ali,

I have appended my responses to the questions you sent as a follow-up to my April 30, 2008 testimony. Please let me know if I may be of any additional assistance to you or your colleagues. You may feel free to reach me at the office at 703-469-1239 or via electronic mail at kbook@fbr.com.

Best regards,

Kevin Book
Senior Vice President, Senior Analyst
Energy Policy, Oil & Alternative Energy
FBR Capital Markets Corporation

1) Do you support having a Strategic Petroleum Reserve?

Yes. The SPR plays a vital role in protecting U.S. energy security. In my opinion, it represents the most successful and continuing policy response to the energy supply shocks of 30 years ago.

2) Given the history of the Strategic Petroleum Reserve, what do you think constitutes an emergency" that should trigger stopping the fill? Or accessing the reserves? If we stop filling the reserve because of prices, is it the start down a path of tapping the reserve because of prices?

Until the SPR reaches its full capacity, it is not clear that anything short of a material disruption in global supply that exceeds available spare capacity should slow or stop the fill. The reserves in the SPR should be retained for precisely this sort of event. There is no justification given the geological stability of unrefined petroleum for drawing down the reserve in non-emergency circumstances; that is tantamount to putting the nation's safety net in a gas tank and driving away with it.

3) Which do you think would have a greater impact on the supply and price of gasoline, stopping the fill of the Strategic Petroleum Reserve or accessing American oil reserves in Alaska, the outer continental shelf and western oil shale?

Realistic estimates suggest that conventional oil production on the OCS could add between 1.5 and 2.0 MM bbl/d to U.S. supply and ANWR might add a net of 1.0 MM bbl/d (even if more flows, it might crowd out some capacity of TAPS unless Prudhoe declines further), for a total of 3.0 MM bbl/d at maturity. We have seen that the 70,000 bbl/d suspended by recent legislative action has had no effect on price – WTI prices have risen 8% since enactment. The question of whether 3.0 MM bbl/d would have an effect is harder to answer because it would depend on the other factors affecting global oil system capacity – Saudi supply growth and demand retracement. We project that the system capacity could fall from approximately 97% today to between 91% and 93% in two years with demand responses and capacity growth. In this context, 1-3 MM bbl/d could significantly affect price if commercial bidders grew less concerned about the need to secure supply at any price. The potential within U.S. shale formations – although truly staggering if fully realized – may be too far away to affect price today.

4) Would you support suspending gas taxes to help bring down the cost of gasoline to consumers even at the risk of endangering road funding?

No.

5) Market speculation has been blamed for increases in oil prices. Do you think that changes to the SPR would improve that situation or would speculation continue?

No SPR-specific action short of a full-scale drawdown of the SPR would be likely to "scare" non-commercial longs out of the market, and it's not clear this would work for any meaningful period of time, as the SPR contains only about half a year's supply at maximum draw (4.4 MM bbl/d). Speculators are not, in my opinion, leading price increases; rather, I believe the opportunities for financial speculation are created by fundamental scarcity.

6) After adjusting for inflation, U.S. average gasoline prices in 2006 were lower than the average annual prices consumers paid in the period 1978 to 1982 and during the 1930s. Do you believe that recent price levels have been shocking primarily because consumers enjoyed unusually low gasoline prices for over a decade from 1986 to 1999?

Yes. In addition, the strength of the real estate market also may have made many drivers indifferent to the ongoing costs of rising gasoline prices throughout the first five years of the decade.

7) With the exception of the aftermath of Hurricanes Katrina and Rita, do movements in crude oil markets explain almost all of the change in gasoline prices over the period from 1999-2006?

They do not. Gasoline price changes are also affected by environmental standards and regulatory requirements that limit supply (like the switch from MTBE to ethanol in 2006) and availability of refining capacity. Driving behaviors are also a factor.

8) The changes in gasoline standards that have improved our environmental quality have also pushed up prices. Has the proliferation of "boutique fuels" had the effect of reducing the capacity of the U.S. refining industry and increasing price volatility by limiting arbitrage possibilities?

Yes, to the extent that boutique fuels standards have prevented refiners from taking advantage of low-cost fuels at large scale and to the extent that specific blendstocks or fuel components have been vulnerable to localized supply disruptions.

9) Is there a compromise area where we could slow rather than stop the fill for the purpose of helping to bring down price?

Filling or not filling the SPR at the pace of 70-110,000 bbl/d is unlikely to materially affect crude oil prices.

10) Do you think the price of oil could realistically fall below $50 per barrel for 90 days? Do think this too stringent of a requirement to start the fill again if it were temporarily stopped?

There is no natural end-user price for oil; refiners buy oil for what it's worth to them so they can make gasoline, diesel and chemicals to sell to motorists and other customers.

$50/bbl is not impossible, but sustained $50/bbl prices in today's world would require a global recession that significantly depressed economic expansion in the "growthy" parts of the world, because falling prices unlock demand.

11) At what price do you think consumers will take action to curb their consumption of gasoline either through cutting down on trips, taking public transportation or buying hybrid cars?

They are doing it now. We see 300,000 bbl/d in U.S. "adaptive" response this year relative to last summer. We project 450,000 bbl/d in "structural" change (new cars, enduring shifts in capital stock) this year, as well.

12) What do you think is most responsible for the rising price of gasoline? Crude oil prices? The value of the US Dollar? Supply shortages? Or something else?

Strictly speaking, crude oil is the costliest part of a gallon of gasoline. I believe that scarcity is the fundamental factor that has driven crude oil prices up the most. The decline of the U.S. dollar has unlocked demand in markets with stronger currencies (they don't feel as much pain), led producers to demand higher prices to maintain wealth parity and reinvestment levels and led some financial investors to diversify into commodities.

13) Since filling the SPR is not a new concept, do you think it has driven the cost of gasoline up over the two years?

No.

14) Won't high gasoline prices help drive down miles driven and therefore greenhouse gas emissions? Thus, if global warming is the pending calamity that many say it is, in the context of global warming, aren't high gas prices a net benefit?

Nothing clears the air faster or more completely than an economic contraction. Every industrial process emits greenhouse gases, so a slowdown is also a "green-up", but slowing economic growth won't stop the emissions from coming back once the economy recovers. Only a change of capital stock to more energy-efficient means of production can do that. The true benefit of high prices may be that it has encouraged structural changes that will have enduring energy conservation (and greenhouse gas abatement) effects. Sustained price inflation, however, might deter anything other than "adaptive" responses because individuals and businesses may be too short of cash to buy more efficient transportation and production equipment in the near-term.

15) Mr. Rusco and the GAO advocates using "dollar-cost-averaging" approach to filling the SPR, though you note the affect that the value of the dollar may have on the price of a barrel of oil. With an increasingly weak dollar, what do you anticipate would result from using the dollar-cost-averaging method of filling the

SPR? What would be the long-term affect on the cost of filling the SPR with volatility in the dollar rather than volatility in the price of oil?

Dollar-cost averaging makes sense from a cost containment perspective. It doesn't make as much sense from an energy security perspective. If the goal in your fill strategy is to protect against a supply disruption, then an absolute level should be defined that reflects the necessary days of demand cover. If the goal in your fill strategy is to protect against spending too much money, then an absolute level of spending should be defined that meets budgetary targets. The perception that it was too expensive to fill the SPR at $115/bbl may seem somewhat laughable at $130/bbl, but incredibly prescient at $85/bbl. If the pocketbook is the top issue, then dollar-cost averaging is a sensible way to go.

16) The first line in your testimony is telling "The global oil system is complex, fragmented and beyond the control of any single government or corporate entity." That being said, since we don't control the system, what policy options do we have for trying to impact the system? Is there anything we can do with other partners – say the signatories to the IEA agreement on reserves – to impact the price of crude oil?

To the extent that IEA reserves can be – and have been – mobilized to secure against a supply disruption, broader participation by consumer nations in the global safety net would insure against future disruptions costing more than expected, but it probably would not reduce price now (and could even drive it up if new participants were obligated to create new reserves in a hurry). A bigger effect might be won by encouraging nations who artificially cheapen their gasoline prices with subsidies to phase out those subsidies in a predictable fashion. This may be better achieved with a carrot (trade opportunities, for example, or WTO accession) than a stick.

17) I appreciate your point about the meaning implicit economic benefits of the SPR – can you expand on those benefits?

If there were no government reserves of petroleum to protect against a supply disruption, then private entities might be likely to invest considerable working capital in preparing their own strategic reserves. This could reduce supply growth if it leaves oil companies and refiners with less money available for new capacity, and the capital costs of tying up dollars in strategic reserves could be passed onto the consumer as higher prices for oil and refined products

18) In your opinion, why does the high price of oil "suggest an imminent supply risk?"

If one believes the market is also a mechanism for price "discovery" and one considers that the oil market has remained well-supplied throughout the run in prices, it is possible to interpret the rapid rise in price as a "risk premium" that reflects the uncertainty of future supply. Rapidly rising prices without actual disruptions could suggest that buyers out in the market are laying in stores in anticipation of a bleak future.

19) You note that "the expectation of non-commercial traders may not shift significantly in response to a 70,000 barrel a day supply change, either, particularly if plans to suspend the SPR fill are clearly articulated and widely anticipated." Can we take that to mean that if we stopped the fill – and then started it up again – that also would not have huge impact?

Adding 70,000 bbl/d of oil back to the market had no discernible effect on price, so it stands to reason that withdrawing that oil again should have equally little impact. On the other hand, resuming the fill at some point in the future when the world has even less spare capacity could lead to a more pronounced price effect.

20) If OPEC slows their rate of production in response to the US either stopping the fill of our reserve and/or drawing down our reserves, what do you think the impact on gasoline prices would be?

The short-run effect of OPEC cuts in response to a U.S. drawdown could offset any price reductions that might result from a U.S. drawdown; the longer-term impact could potentially lead to higher prices, greater price volatility and greater OPEC market power because OPEC reserves would be greater than previously anticipated at the same time that the SPR would be exhausted.

Questions for Frank Rusco
GAO
Select Committee on Energy Independence and Global Warming—April 24, 2008

1) **Do you support having a Strategic Petroleum Reserve?**

GAO has not recently evaluated the costs and benefits of the Strategic Petroleum Reserve nor considered other alternatives to achieving the goals of having such a reserve. Therefore, GAO does not have a position on the whether the U.S. should have a Strategic Petroleum Reserve. However, we have reported that the Strategic Petroleum Reserve can protect the economy from oil supply disruptions and that the U.S. and other nations that are members of the International Energy Agency have committed to hold oil in reserve to mitigate the impacts of such a disruption.

2) **Given the history of the Strategic Petroleum Reserve, what do you think constitutes an "emergency" that should trigger stopping the fill? Or accessing the reserves? If we stop filling the reserve because of prices, is it the start down a path of tapping the reserve because of prices?**

GAO does not have a position as to what constitutes an emergency that should trigger stopping the fill or releasing oil from the Strategic Petroleum Reserve. In 2006, we reported the results of a National Academies panel in which panelists expressed a number of different views about the history of use of the Strategic Petroleum Reserve. Based on this panel, we did not find a consensus about how and when the reserve should be used.[1]

We have testified that taking prices into account in decisions about filling the reserve could save taxpayers a lot of money while still maintaining a policy of filling the reserve. For example, including cheaper heavy crude oils in the SPR would save on fill costs.

[1]GAO, *Strategic Petroleum Reserve: Available Oil Can Provide Significant Benefits, but Many Factors Should Influence Future Decisions about Fill, Use, and Expansion*, GAO-06-872 (Washington, D.C.: Aug. 24, 2006).

Also, DOE could save on fill costs by acquiring a steady dollar value—rather than a steady volume—of oil over time when filling the SPR.[2]

3) **Which do you think would have a greater impact on the supply and price of gasoline, stopping the fill of the Strategic Petroleum Reserve or accessing American oil reserves in Alaska, the outer continental shelf and western oil shale?**

These options are very different and complex matters in their own rights and would require detailed analysis to provide robust estimates of their relative impact. GAO has not conducted such an analysis of these options, so we cannot provide a definitive answer.

4) **Would you support suspending gas taxes to help bring down the cost of gasoline to consumers even at the risk of endangering road funding?**

GAO has not examined the benefits and costs of suspending gas taxes and, as a result, does not have an informed opinion regarding this policy choice. However, we noted in a recent testimony that both the administration and the Congressional Budget Office project that with current tax and spending levels the balances of the Highway and Transit Accounts of the Highway Trust Fund would be exhausted by the end of fiscal year 2010.[3]

5) **Market speculation has been blamed for increases in oil prices. Do you think that changes to the SPR would improve that situation or would speculation continue?**

In GAO's work looking at speculation in energy commodity markets we found that there is no consensus among experts as to the effects of such speculation on prices of these commodities.[4] Having said that, GAO has not studied any potential link between the

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[2]GAO, *Strategic Petroleum Reserve: Improving the Cost-Effectiveness of Filling the Reserve*, GAO-08-726T, (Washington, D.C.: Apr. 24, 2008).
[3]GAO, *Physical Infrastructure: Challenges and Investment Options for the Nation's Infrastructure*, GAO-08-763T, (Washington, D.C.: May 8, 2008).
[4]GAO, *Commodity Futures Trading Commission: Trends in Energy Derivatives Markets Raise Questions about CFTC's Oversigh* , GAO-08-25, (Washington, D.C.: Oct. 19, 2007).

SPR and speculation in energy commodity markets and, as a result, we have no opinion on whether changes to the SPR would change whatever role speculation plays in the current oil market.

6) **After adjusting for inflation, U.S. average gasoline prices in 2006 were lower than the average annual prices consumers paid in the period 1978 to 1982 and during the 1930s. Do you believe that recent price levels have been shocking primarily because consumers enjoyed unusually low gasoline prices for over a decade from 1986 to 1999?**

GAO has not studied consumer reaction to gasoline prices and therefore we cannot comment on this question.

7) **With the exception of the aftermath of Hurricanes Katrina and Rita, do movements in crude oil markets explain almost all of the change in gasoline prices over the period from 1999-2006?**

We have found that crude oil prices are the major determinant of the price of gasoline. However, a number of other factors also affect gasoline prices including (1) global refining capacity that has not kept pace with growing demand for gasoline and other petroleum products in recent years, (2) reductions in gasoline inventories maintained by refiners or marketers of gasoline, which may cause prices to rise or be more volatile in the event of supply disruptions, (3) regulatory factors, such as national air quality standards, that have induced some states to switch to special gasoline blends and put stress on the nation's supply delivery infrastructure and raised costs, and, (4) the structure of the gasoline market. For example, mergers raise concerns about potential anticompetitive effects because mergers could result in greater market power for the merged companies, potentially allowing them to increase prices above competitive levels.[5, 6, 7]

[5]GAO, *Energy Markets: Factors Contributing to Higher Gasoline Prices*, GAO-06-412T (Washington, D.C.: Feb. 1, 2006)

8) The changes in gasoline standards that have improved our environmental quality have also pushed up prices. Has the proliferation of "boutique fuels" had the effect of reducing the capacity of the U.S. refining industry and increasing price volatility by limiting arbitrage possibilities?

We have reported that the proliferation of special gasoline blends has put stress on the gasoline supply system and raised costs, affecting operations at refineries, pipelines, and storage terminals. Producing some special gasoline blends sometimes requires refineries to invest in additional refinery units, making their refineries more complex, or reducing their capacity to make gasoline. Once produced, different blends must be kept separate throughout shipping and delivery, reducing the capacity of pipelines and storage terminal facilities, which were originally designed to handle fewer products. This reduces efficiency and raises costs. In the past, local supply disruptions could be addressed quickly by bringing fuel from nearby locations; now however, because the use of these fuels are isolated, additional supplies of special blends may be hundreds of miles away.[8]

9) Is there a compromise area where we could slow rather than stop the fill for the purpose of helping to bring down price?

We have recommended that DOE buy less when prices are higher and more when prices are lower. If DOE were to adopt this recommendation, it would have the effect of slowing the fill of the SPR at times, such as recently, when prices have risen rapidly without stopping the filling of the reserve.

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[6]GAO, *Energy Markets: Increasing Globalization of Petroleum Products Markets, Tightening Refining Demand and Supply Balance, and Other Trends Have Implications for U.S. Energy Supply, Prices, and Price Volatility*, GAO-08-14 (Washington, D.C.: Dec. 20, 2007).
[7]GAO, *Gasoline Markets: Special Gasoline Blends Reduce Emissions and Improve Air Quality, but Complicate Supply and Contribute to Higher Prices*, GAO-05-421 (Washington, D.C.: June 17, 2005).
[8]GAO-05-421.

10) Do you think the price of oil could realistically fall below $50 per barrel for 90 days? Do you think this too stringent of a requirement to start the fill again if it were temporarily stopped?

GAO has not projected future oil prices and cannot comment on the likelihood of prices reaching any specific level at any future date. We have not examined the merits of stopping or resuming the fill of the SPR, though we have recommended varying the rate of fill based on price.

11) At what price do you think consumers will take action to curb their consumption of gasoline either through cutting down on trips, taking public transportation or buying hybrid cars?

While GAO has not studied this particular question in great detail, we have reported that recent increases in gasoline prices have coincided with changes in consumer behavior. Specifically, we reported in February 2007 that new purchases of light trucks, SUVs, and minivans declined in 2005 and 2006, corresponding to a period of increasing gasoline prices. We also reported that gasoline demand grew slower in 2005 and 2006 compared with the preceding decade. Finally, we reported that past high oil prices significantly affected oil consumption: U.S. oil consumption fell by about 18 percent from 1979 to 1983, in part because U.S. consumers purchased more fuel efficient vehicles in response to high oil prices.[9]

12) What do you think is most responsible for the rising price of gasoline? Crude oil prices? The value of the US Dollar? Supply shortages? Or something else?

Crude oil prices are the single most important determining factor in explaining gasoline prices. We noted several other important influences on gasoline prices in our answer to question #7, above. We have not conducted detailed work on the current influences on

[9]GAO, *Crude Oil: Uncertainty about Future Oil Supply Makes It Important to Develop a Strategy for Addressing a Peak and Decline in Oil Production,* GAO-07-283 (Washington, D.C.: Feb. 28, 2007).

oil prices of the erosion of the value of the dollar so we cannot comment further on this possibility.

13) Since filling the SPR is not a new concept, do you think it has driven the cost of gasoline up over the past two years?

GAO believes that taking oil out of the market to fill the SPR puts upward pressure on crude oil prices. As a result, this would put upward pressure on gasoline prices. However, we do not believe there is a consensus among experts as to the precise magnitude of price effects of filling the reserve.

14) Won't high gasoline prices help drive down miles driven and therefore greenhouse gas emissions? Thus, if global warming is the pending calamity that many say it is, in the context of global warming, aren't high gas prices a net benefit?

Higher gasoline prices will cause consumers to reduce gasoline consumption, over time. However, it is clear that some of the factors influencing gasoline consumption, such as vehicle type, distances between work and home, and industrial patterns, will take time to change and could involve financial and social dislocations as they occur. GAO has not studied the net benefits of higher gasoline prices. We note that the U.S. Department of Transportation recently reported that estimated vehicle miles traveled on all U.S. public roads for March 2008 fell 4.3 percent as compared with March 2007 traveled, making this the first time estimated March travel on public roads fell since 1979.

15) The GAO recommended that the DOE should include heavy crude oils in the SPR. How does a shift in that direction save money and what would be the other benefits of doing so? Would this ultimately help bring down the cost of gasoline to consumers?

Including heavier oils in the SPR saves money because heavier oils generally cost less than lighter oils. In addition, having heavier oils that better match the oils U.S. refiners

typically process would also improve the effectiveness of the SPR in the event of its use during an oil supply disruption because U.S. refiners would be able to get oils that are more compatible with their existing refining infrastructure and processes.

16) The ability to refine our fuel resources is also important. Can you talk about the role of refineries as they relate to the SPR? You mentioned that you would support including 10% heavy crude oil to make it more compatible with domestic refining capability – would you support a higher percentage? Should we focus more on domestic refining capacity in order to be truly energy independent?

As we have testified, about 40 percent of oil accepted by U.S. refiners in 2006 was heavier than that stored in the SPR. As a result, we believe that the SPR may be able to hold more than 10 percent heavy oil. We have recommended that DOE conduct a study to determine the maximum amount of heavy oil that the SPR could hold in order to more closely match domestic refining processes with crude oils in the reserve.

17) You mention the idea of "dollar cost averaging" for SPR purchases. Does it make sense to use dollar cost averaging if the SPR is not filled to the desired capacity yet?

Dollar cost averaging makes sense because it allows for the purchase of more oil when prices are lower and less when prices are higher. Using dollar cost averaging or some other mechanism to buy more when prices are lower and less when prices are higher does not mean that the reserve will have to be filled at a slower pace. The pace of filling the reserve would depend on the amount of money allocated each month and on future prices of oil. If Congress wanted to fill the reserve faster, it could increase the amount of money provided to DOE for that purpose.

18) Once the SPR reaches its current capacity level, where would the incoming reserves be stored?

DOE has developed plans for three additional storage sites to receive oil in Mississippi, Louisiana, and Texas.

19) Do oil companies save money by paying royalties through the fill instead of cash? If the fill is stopped, do the oil companies then switch back to cash royalties? And if so, since that is an expense in cash rather than oil, would there be a change in the price of gasoline?

The decision to take royalties in kind versus in cash is made by the Department of the Interior. If the fill is stopped, the federal government could continue to take oil "in kind" and sell it, or choose to start to receive royalties as cash. Regardless, stopping the fill would mean that more oil is on the market and this would put downward pressure on oil prices and, consequently, on gasoline prices. As we testified, we do not know, nor do we believe there is a consensus regarding the magnitude of the price effect.

Whether royalties are paid in cash, or in kind, producers would have to, in one way or another, have an expense for royalties paid to the federal government. We have not examined whether the shift in the how royalties are paid would affect the market-clearing price of gasoline.

20) If we were to defer fill rather than stop the fill, would that potentially bring down the price of gasoline or have no impact?

Whether we deferred or stopped filling the SPR, the effect would be to increase the supply of oil in the market and this would put downward pressure on oil prices, although the magnitude of the effect is unknown. Using dollar cost averaging or increasing the use of deferrals would effectively serve as a formal mechanism to reduce the rate of the fill (or partially defer filling) when prices are higher, and increasing the rate of the fill when prices are lower.

21) How many days of import protection do we currently have in the SPR? And what is the International Energy Agency requirement? Is there a concern about not meeting our international obligation?

As noted in our testimony April 24th testimony, as of April 21st, 2008, the inventory of the SPR was about 701 million barrels of oil, equal to about 58 days of net oil imports. The U.S., along with other members of the International Energy Agency, has agreed to maintain a reserve equal to 90 days of net imports. To meet this requirement, the United States has routinely viewed its total reserves as the oil in the SPR as well as oil and petroleum products held by private companies, such as oil companies. In our 2006 report on the SPR, we noted that DOE estimated the privately held reserves were equal to about an additional 59 days of net imports.[10] Assuming that these private reserves remain at a similar relative level as they were in 2006, total reserves would amount to about 117 days of imports. Further, we reported that the Energy Information Administration had recently estimated that with growing domestic demand, and without additions to publicly or privately held reserves, the United States would drop below its stockholding obligation of 90 days of net imports by 2025.

22) If we look at this as an energy security issue, what do you think the appropriate amount of import protection for the reserves is?

We have not conducted an analysis that would enable us to make such an estimate.

23) If the DOE gave oil companies using the royalty-in-kind program the flexibility to defer oil deliveries in exchange for barrels of oil, how much money would that save the federal government? Would that create any risk for supply availability if the SPR was needed in the future?

[10]GAO, *Strategic Petroleum Reserve: Available Oil Can Provide Significant Benefits, but Many Factors Should Influence Future Decisions about Fill, Use, and Expansion*, GAO-06-872 (Washington, D.C.: Aug. 24, 2006).

In principal, allowing deferrals would require companies to provide the oil owed later plus more oil later than what was owed initially. The savings to the government from deferred deliveries would depend on the terms of the deferral agreement, such as the amount companies are willing to pay for the ability to defer deliveries. By deferring deliveries, there is a short-term delay in the fill of the SPR. However, as we testified, with a reserve as big as 700 million barrels, there is some flexibility to protect the economy from oil supply disruptions. Therefore, we can afford to make remaining fill decisions in a more cost effective manner.

24) Do you agree with the DOE's assertion that due to the planned SPR expansion, determination of including 10% heavy crude oils should wait until there is a new study of Gulf Coast heavy sour crude refining requirements? When is that expected to be done?

DOE already determined in 2005 that it should have at least 10 percent heavy crude oil in the reserve and we agree, so we do not think further study is warranted in this specific regard. However, we have recommended that DOE study the maximum amount of heavier crude oils that it should have in the SPR, and we believe that such a study would determine that the reserve could hold more than 10 percent of heavier oils because data from DOE's Energy Information Administration show that of the approximately 5.6 billion barrels of oil that U.S. refiners accepted in 2006, approximately 40 percent was heavier than that stored in the SPR.

25) You talk about the royalty-in-kind program as being less cost-effective and I can see that, but are their broader policy reasons for having a royalty-in-kind program that should be considered before deciding to go with a cash only program? For example, using the royalty-in-kind the DOE does not need annual appropriations to purchase oil, which is something we in Congress typically struggle to complete on time.

Using royalty-in-kind oil to trade for oil to fill the SPR does allow the SPR to be filled in the absence of annual appropriations. However, as we noted in our testimony, there are concerns that using royalty-in-kind oil to trade for oil to put in the SPR may not be as efficient as a cash-based system. In addition, GAO has had concerns about "off-budget" programs such as the Royalty-In-Kind program, for the very reason that they are not forced to go through the annual budget decision-making process. This process serves to allow the Congress and the President to prioritize spending decisions and provide oversight.

26) Your GAO study indicates a savings of $1.2 billion in nominal terms if the DOE were to fill the SPR with 10% heavy oil rather than entirely with light crude. What is the cost difference in refining the two types of crude? What would be the net financial gain if the DOE were to accept your recommendation? Are there other differences in the refining process between the two types of oil?

As noted in our testimony, many refineries are currently configured to process heavier grades of crude than are currently being purchased for the SPR and that processing lighter grades would either reduce refined product output or require time-consuming and costly reconfiguration. Therefore, it would be more costly per barrel of refined petroleum product output for these refineries to process the lighter crude oil that is held in the reserve than the heavier crude oils they are designed to optimally process. This is why we testified that having heavy oils in the SPR both reduces the costs of acquisition of oil for the reserve and increases the effectiveness of using the reserve in an oil supply disruption. While processing heavier oils requires more costly refinery investments than processing lighter oils, the investments to process heavier crude oils have already been made. Therefore, it is not the case that these refineries could refine lighter crude oil at lower cost than heavier crude oils. In fact, processing lighter crude oils would leave part of these refineries' capacity idle, which would increase, rather than reduce, their average cost of production.

27) Another one of your recommendations is to use a "dollar-cost-averaging" approach to filling the SPR. Specifically, you note "we also ran simulations to estimate

potential future cost savings from using a dollar-cost-averaging approach over 5 years and found that DOE could save money regardless of the price of oil as long as there is price volatility, and that the savings would be generally greater if oil prices were more volatile." With an increasingly weak dollar, what would be the long-term affect on the cost of filling the SPR with volatility in the dollar rather than volatility in the price of oil?

We have not studied the effect of movements in the value of the U.S. dollar and oil prices but are aware that some believe these to be importantly linked. Without doing further study, we cannot comment any further on this issue.

28) Has the GAO studied the effect on the number of days of net imports the SPR holds if we were to increase domestic oil production? If the United States were to increase domestic production, would the amount of oil to be stored in the reserve decrease?

Any net increase in domestic production and consequent net reduction in net imports would reduce our obligation to hold reserves. However, as of 2006, when we last reported on this, the United States held almost 30 days more in reserves than our obligation to hold 90 days of net imports. Further, Congress enacted legislation in 2005 to require DOE to increase the level of reserves even further.

29) You repeatedly stress that DOE should fill the SPR with more crude when prices are low, yet I'll venture to assert that not many people anticipated the current record prices. Should the government speculate that the price will drop in the future and thus halt filling the SPR right now? Do you advocate purchasing oil in the futures market (where the current cost of oil is lower than today) or should we continue to purchase oil in the spot market? With the drastic increase in worldwide demand, is it possible that prices now will be comparatively lower to the future price of oil?

To be clear, allocating a fixed dollar amount per month to purchase oil for the SPR and increasing the use of short-term deferrals where the latter are deemed to be cost beneficial will reduce the cost of filling the reserve. Using such mechanisms, the federal government would continue to add oil to the SPR monthly—less when oil prices were higher and more when prices were lower. Our scenario analyses showed that dollar cost averaging can save money regardless of whether prices are generally rising, falling, or are fairly stable over time as long as prices on a month-to-month basis have some volatility. Therefore, had we used dollar cost averaging over the past five years, even as oil prices have generally risen, we would have saved money by having purchased more oil in months when prices fell and less in months when prices rose.

We have not examined the use of futures markets to fill the reserve. However, using the information contained in futures prices could assist DOE in deciding when and by how much to defer filling the reserve at any point in time. For example, if futures prices six months out are lower than the price today, DOE could use this information to decide how many additional barrels of oil to charge companies wishing to defer delivery to the SPR.

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