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SHORT-TERM ENERGY OUTLOOK: SUMMER 2007

HEARING

BEFORE THE

COMMITTEE ON ENERGY AND NATURAL RESOURCES UNITED STATES SENATE

ONE HUNDRED TENTH CONGRESS

FIRST SESSION

TO

RECEIVE TESTIMONY ON THE OUTLOOK FOR OIL AND GASOLINE PRICES FOR THE SUMMER DRIVING SEASON

MAY 15, 2007

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SHORT-TERM ENERGY OUTLOOK: SUMMER 2007

TUESDAY, MAY 15, 2007

U.S. SENATE,
COMMITTEE ON ENERGY AND NATURAL RESOURCES,
Washington, DC.

The committee met, pursuant to notice, at 10:06 a.m., in room SD–366, Dirksen Senate Office Building, Hon. Jeff Bingaman, chairman, presiding.

OPENING STATEMENT OF HON. JEFF BINGAMAN, U.S. SENATOR FROM NEW MEXICO

The CHAIRMAN. Why don't we get started. Thank you all for being here. The purpose of today's hearing is to discuss the outlook for gasoline and oil prices and supply and demand, particularly focused on this summer's driving season. We called this hearing because of the concern, which I think many members on the committee share, that gasoline prices are at an historic high. Today the Energy Information Administration posted the highest ever price for gasoline at a nationwide average of I believe $3.10 per gallon. This is the third summer in a row that we are having this discussion about why prices are at record levels.

We are pleased to have before us a panel of experts who we would expect—who we hope can explain to us how we find ourselves at this point yet again and what we should expect for the remainder of the summer. The U.S. economy remains vulnerable to oil and gas supply disruptions and associated price increases. This committee is working to address this vulnerability by reporting the Energy Savings Act, which will reduce our oil dependence by increasing the use of home-grown biofuels. As we diversify our transportation fuels, we will become less vulnerable to oil price spikes.

I note that our discussions today will focus on the market fundamentals of supply and demand and on the state of the U.S. and global refining industry. Other very important aspects of the topic, such as gasoline pricing and potential price gouging, are also being discussed in the Commerce Committee, which has jurisdiction on those issues. The topics we are focused on in the jurisdiction of this committee include Saudi Arabian oil production levels, recurring geopolitical problems in important producing countries like Nigeria, higher than expected demand for oil and gas products, and recurring problems with refining. All of these factors have worked together to cause oil and gas prices to reach this all-time high level.

So I thank the panel of experts for participating. It is a pleasure to have you all here. Before I introduce the panel, let me call on Senator Domenici for any comments that he has.

[The prepared statement of Senator Salazar follows:]

PREPARED STATEMENT OF HON. KEN SALAZAR, U.S. SENATOR FROM COLORADO

I want to thank Chairman Bingaman and Ranking Member Domenici for holding today's important hearing. The Energy Information Administration's annual forecast of summer gasoline prices seems to have become a normal rite of summer. Yet, today's hearing brings to the forefront the problems our country faces because of our continued reliance on foreign oil. We must begin to produce more fuel domestically, and set aggressive targets for far greater fuel efficiency in the transportation sector.

Production cuts by the Organization of Petroleum Exporting Countries (OPEC) are partly responsible for the rising gasoline prices consumers will see this summer and demonstrate that our reliance on foreign oil jeopardizes both our national and economic security. Just yesterday, the price of gasoline in Colorado had reached $3.22 per gallon. The Energy Savings Act of 2007, which was reported out of this committee last week by a strong, bipartisan vote, is charting a new course for America to set us free from our overdependence on foreign oil.

The Energy Savings Act of 2007 will boost renewable content in U.S. gasoline, starting at 8.5 billion gallons in 2008, to 36 billion gallons in 2022, and there are specific requirements for the production of advanced biofuels from new, more efficient feedstocks. That's enough to reduce projected U.S. oil imports by a million barrels per day.

Our country is extremely rich in renewable energy resources which can be used to produce liquid fuels, and I believe because of strong leadership from this Congress, our country is finally going to see a clean energy revolution develop in this country. In small towns across Colorado, we are seeing the start-up of small biofuels plants that are fueling our cars. We are also seeing the deployment of cellulosic ethanol plants across the country which will help our country meet the higher production targets for advanced biofuels in the later years.

I believe that once our country becomes serious about the domestic production of renewable fuels, we will see great advances in these technologies. That is why I will continue to press for even higher renewable fuel standards when the Senate begins to debate the Energy Savings Act of 2007.

In addition, we must improve fuel efficiency. The Energy Savings Act of 2007 will establish an escalating goal for reducing U.S. gasoline consumption, starting with 20 percent in 2017, and the national goal for gasoline savings ramps up to 45 percent in 2030, which is equivalent to 5.6 million barrels of oil per day. Similarly, I will continue to press for even higher oil savings that will strengthen the Energy Savings Act of 2007 by incorporating key provisions from the Dependence Reduction Through Innovation in Vehicles and Energy Act or the DRIVE Act. The DRIVE Act sets oil savings targets of 2.5 million barrels-per-day by 2016 and 10 million barrels-per-day by 2031.

A national commitment that includes effective policy measures is necessary if we are to make fundamental changes in the use of foreign oil in our transportation sector. I want to thank the Chairman and Ranking Member for their leadership on this committee to working together to find real solutions for the energy challenges facing our country today.

STATEMENT OF HON. PETE V. DOMENICI, U.S. SENATOR FROM NEW MEXICO

Senator DOMENICI. I do have a few comments and observations before the distinguished panel speaks. I would like to thank Chairman Bingaman for calling the hearing. Unfortunately, this hearing has become a predicate—is as predictable as the cherry blossoms. You do not know exactly when it will happen, but you can bet that some time in late spring we will have a hearing on gasoline prices.

Yesterday the nationwide price for gasoline, as Senator Bingaman indicated, reached a record high of $3.10 in nominal dollars. I would like to make an historical note here. The inflation-adjusted

record is still 1981 at $3.22. We are getting close, but we have not reached it yet.

It is also equally predictable that some will make charges of price-fixing and manipulation. There is absolutely price-fixing going on in oil markets, but neither we nor our domestic companies have any control over that. When you import over 60 percent of your petroleum, most of it comes from countries not friendly to the U.S. interests, you must concede that you do not control your own destiny. Crude oil is still the largest cost component of gasoline. Supply is down and prices are up. In fact, we have evidence that the prices we see quoted most often, the price for West Texas Intermediate, or WTI as it is noted, does not fully reflect the cost of oil on world markets. I would like to ask about that later and see what we can learn.

What we can do is regain control over our own destiny. This committee is doing some things where we are definitely trying to do that. The goal is clear: increase production of domestic sources and then build the infrastructure needed to deliver it to the market. Last Congress we took a step forward, allowing access to oil reserves in the Gulf of Mexico. We must now provide mechanisms for access to the remaining resources on the Outer Continental Shelf. There is a dispute. Let us bring that dispute to a ripened debate and see where the Senate lies.

In the Energy Policy Act of 2005, we encouraged increased production of ethanol and our country is now experiencing an ethanol boom. In the past weeks this committee reported legislation to increase the ethanol mandate and expand its reach to feedstock's, with the goal of reducing gasoline consumption by motor vehicles by 20 percent by the year 2017, a very excellent goal. Some question it, but we did the right thing.

Unfortunately, this part of our economy is like a big aircraft carrier steaming through the waters. It does not turn on a dime and when it does turn it may make a big wave that is going to rock some boats. This is a good news and bad news situation. The good news is that the economy is strong, the ethanol plants are getting built, the air is getting cleaner. The bad news is oil demand is up, not down, so prices are up, ethanol plants are not at full capacity yet, New requirements for ultra-clean fuel power refinery output, and the limit on import options.

That is the true situation. Refining capacity is clearly an issue and we still ask questions about that today. We have known for some time that we have been working with very little or no margin for error in terms of refinery capacity. That happens when you go 30 years without building a new plant in the United States. We are told that industry plans almost 2 million barrels per day expansion and we ought to talk about that today. That would be a 20 percent increase if it happened.

There is no silver bullet, but what I have just described would take us a long way towards solving the problem. I do hope that with the Energy Policy Act of 2005, that the Gulf of Mexico Energy Security Act of 2006 and the legislation we plan to take to the floor in the near future that this boat is starting to make the turn to get us on the right course. At least I hope so.

Thank you very much, Mr. Chairman.

The CHAIRMAN. Thank you very much.

Let me just indicate who our witnesses are and then call on them for their statements. First is Guy Caruso, who is the Administrator of the Energy Information Administration, a frequent witness before this committee, and we appreciate his being here again today.

Kevin J. Lindemer, who is the executive managing director of energy for Global Insight in Lexington, Massachusetts, and we appreciate him being here.

Pal Sankey, managing director of the oil team, equity research, of Deutsche Bank in New York. Thank you for coming.

And Geoff Sundstrom, who is director of public relations with AAA's National Office out of Heathrow, Florida. Thank you for being here.

Why don't you just proceed and each take 6 to 8 minutes, or whatever time you need, to summarize your statement. Your entire statement will be included in the record as if you read it, but if you could give us the main points that we need to understand that would be preferable.

Mr. Caruso, go right ahead.

STATEMENT OF GUY CARUSO, ADMINISTRATOR, ENERGY INFORMATION ADMINISTRATION

Mr. CARUSO. Thank you very much, Mr. Chairman. I appreciate the opportunity to appear today presenting the Energy Information Administration's latest short-term outlook, and I will focus on our projections for crude oil and gasoline prices this summer and discuss the factors that have contributed to the high prices that you have mentioned and, perhaps as important, the continued uncertainty in these markets.

Global oil markets have tightened for crude oil and light petroleum products, especially gasoline. Commercial oil inventories have dropped considerably since the end of September, reflecting strong oil demand, product cuts by the oil and gas of petroleum exporting countries, OPEC, members, and oil moderate increases in non-OPEC production. Plus, increasing global demand for light products has put pressure on refinery capacity worldwide.

We project the West Texas Intermediate crude oil price of about $66 this summer. That is down a bit from last summer, when it was $70. We also project that WTI prices will average about $64 this full year and into 2008.

Retail prices for regular gasoline have increased from $2.17 per gallon at the end of January 2007 to $3.10 as of yesterday. This compares with last year's summer average of $2.84 per gallon. We are projecting gasoline prices this summer to average $2.95, with peak monthly averages of over $3.00 in May and then again in August during the peak driving season.

However, prices vary significantly by region. For example, yesterday's data indicate an average price of $2.92 per gallon in the gulf coast region and $3.38 in the west coast region.

Against the background of already tight world markets, global geopolitical uncertainties can create threats to global oil supplies and transport. Geopolitical certainty in a number of countries in the Middle East and Africa will continue to keep markets on edge. For example, Nigeria's problems have aggravated the gasoline situ-

ation because that country produces largely light and sweet crude oil which is used by the world's refineries to produce products like gasoline. Moreover, Nigeria is also importing a significant amount of products for its own use due to disruptions of its domestic refineries.

Turning to gasoline markets, we expect gasoline markets will remain very tight through this summer and we anticipate—although we do anticipate some improvement in the coming months. Gasoline inventories, which typically build slightly in April, sharply declined last month because of refinery outages and lower than normal gasoline imports.

Gasoline supply has been affected more than usual by refinery outages this spring. U.S. refineries typically have high outages during the first quarter, reducing production of gasoline and other products. This year these outages have extended into May and, along with low imports and seasonally rising gasoline demand, contributed to the sharp inventory decline and price pressure in April.

Refinery throughputs have just begun to show the seasonal increase typical at this time of year and are expected to increase over the next several months, which should ease pressure on gasoline prices.

Gasoline imports, critical to meeting U.S. consumption needs, are lagging last year's level and, thus, also affecting oil prices. Low gasoline inventories in Europe have resulted in limited volumes available for export to the United States and total U.S. gasoline imports have only recently reached 1.2 million barrels per day, which is what we have been expecting for this time of the year. Imports at above that level are likely to be needed to avoid persistent pressure, upward pressure on gasoline prices.

In conclusion, Mr. Chairman, the combination of tight crude oil and refinery markets along with ongoing geopolitical concerns leaves crude oil and gasoline markets poised for continued volatility this summer. However, with refinery production expected to improve during the rest of May and import volumes increasing over the coming weeks, gasoline markets may ease somewhat, causing gasoline prices to recede from current high levels. However, with the hurricane season approaching, continued tight refinery conditions, low gasoline inventories, and increased demand for summer travel, upward pressure on prices remains a concern.

Mr. Chairman, let me conclude by returning to your comments and Senator Domenici's comments about the pattern you have noticed of seeing me here each of the last three summers. Indeed, there have been factors that I have explained today that are a bit different this year than there were last year, when we were phasing out MTBE with ethanol as an oxygenate and ultra-low-sulfur diesel added to the complexity, and then the previous year was Katrina and Rita. But what the underlying problem is, the U.S. production industry's infrastructure is just unable to cope with the increasing demand during the strong U.S. and global economy we have witnessed over the last several years.

Indeed, this is happening in an increasingly complex world of stringent product requirements and other logistical issues that have stretched this industry thin and therefore there is insufficient capacity to deal with unexpected changes, whether they be weath-

er-related, economy-related, or industrial accidents in the refinery sector, in the transportation pipeline sector, and even in the storage sector.

So until that inventory is made in the infrastructure to provide some cushion in this industry, the only pressure relief valve when unexpected events occur is price. In the summer we have noticed it with gasoline, in the winter with heating oil and sometimes natural gas. Meanwhile, we are turning more and more towards foreign sources of both crude and petroleum products, as Senator Domenici mentioned. Therefore we are increasingly dependent on the geopolitical conditions around the world, and tight global markets are making this path much more volatile and uncertain.

Therefore, I am sorry to have to say that it is probably likely that you will see me here again next summer explaining why higher prices have again occurred for some reason which we cannot even determine now, whether it be hurricanes, industrial accidents, or a robust global economy.

Thank you very much, Mr. Chairman.

[The prepared statement of Mr. Caruso follows:]

PREPARED STATEMENT OF GUY CARUSO, ADMINISTRATOR, ENERGY INFORMATION ADMINISTRATION

Mr. Chairman and members of the committee, I appreciate the opportunity to appear before you today. The Energy Information Administration (EIA) is the independent statistical and analytical agency within the Department of Energy. We are charged with providing objective, timely and relevant data, analyses, and projections for the Congress, the Administration, and the public. While we do not take positions on policy issues, our work can assist energy policymakers in their deliberations. Because we have an element of statutory independence with respect to our activities, our views are strictly those of EIA and should not be construed as representing those of the Department of Energy or the Administration. Today, I will focus on ETA's recent short-term projections for petroleum and gasoline prices and discuss the factors contributing to high prices and continued uncertainty in these markets.

Global oil markets have tightened sharply since the beginning of the year, both for crude oil and light petroleum products, especially gasoline and distillate fuel. Commercial oil inventories have dropped considerably since the end of September, reflecting strong oil demand, production cuts by Organization of Petroleum Exporting Countries (OPEC) members, and only modest increases in non-OPEC production. Increasing global demand for light products has put significant pressure on refining capacity in the United States and elsewhere. Given these conditions of increasing demand without commensurate increases in supply, prices have been increasing and will remain highly sensitive to actual or anticipated risks, such as geopolitical events, whose probabilities are often very difficult to quantify.

EIA released its *Short-Term Energy Outlook* on May 8 and we project average West Texas Intermediate (WTI) crude oil prices of about $66 per barrel this summer compared with over $70 per barrel last summer. We are also projecting that WTI prices will average about $64 per barrel annually in both 2007 and 2008. In recent months, however, movements in benchmark WTI prices have not provided an accurate gauge of overall oil market developments. An alternative price—Brent crude oil—increased from $50 per barrel in mid-January to $69 per barrel by early April. As of early May, the Brent crude had dropped back into the mid-$60s.

Retail, regular grade, gasoline prices have increased from $2.17 per gallon at the end of January to $3.05 per gallon on May 7, compared with the $2.84 per-gallon-average of last summer. U.S. regular motor gasoline prices are projected to average $2.95 per gallon this summer, with a peak monthly average of $3.01 in May and again in August. However, prices vary significantly by region: for example, EIA's data for May 7 show an average price of $2.87 per gallon in the Gulf Coast region and $3.37 in the West Coast region. California has customarily experienced the highest prices in the United States due to several factors, including stricter environmental standards, which mandate a more expensive form of gasoline, and the relative isolation of West Coast markets from other supply sources. On the other hand,

States in the Gulf Coast region are reporting among the lowest prices in the country due to their proximity to oil fields and refineries.

Recent gasoline price developments reflect both changes in oil markets and factors specific to gasoline markets, as outlined in the following two sections of my testimony.

OIL MARKETS

World oil markets are projected to remain tight, sustaining high crude prices this summer as well as for the next several years due to continued growth in oil demand, little growth in non-OPEC supply, and continued production restraint by OPEC members. OPEC's production cuts, in combination with a growing demand for oil that is exceeding the growth in non-OPEC supplies, have reduced Organization for Economic Cooperation and Development (OECD) commercial oil inventories from their historically high levels to levels in the middle of the normal range. EIA estimates that OECD inventories declined by 1.1 million barrels per day in the first quarter of 2007 (compared with an average inventory draw over the past 5 years of 0.3 million barrels per day for that quarter). Forward cover (the number of days that inventory can cover projected consumption) is expected to decrease to the low end of the normal range by the end of 2007 (Figure 1).*

Despite the recent increases in world oil prices, global oil consumption is projected to grow by 1.4 million barrels per day in 2007 and by 1.6 million barrels per day in 2008. About one-half of the projected growth is in China and the United States. Preliminary first-quarter 2007 data indicate that U.S. consumption rose by over 500,000 barrels per day, of which 160,000 barrels per day was gasoline, and Chinese consumption rose by about 400,000 barrels per day, relative to first-quarter 2006 levels. Colder weather relative to last year and robust personal disposable income growth were both major contributors to higher U.S. demand. Double-digit economic growth continues to drive Chinese oil demand growth.

Non-OPEC production increases are projected at roughly half of the global demand growth, with production (excluding Angola) rising by roughly 0.8 million barrels per day in both 2007 and 2008. Output growth from non-OPEC countries reflects strong gains from new projects in the Caspian Sea, Sakhalin Island in far-eastern Russia, Africa, Brazil, and the United States (Figure 2). However, declining production from mature basins in the North Sea, the Middle East, Mexico, and Russia will offset the growth potential from these new projects. If these projections for demand and non-OPEC production materialize, demand for OPEC oil will rise accordingly.

From the third quarter of 2006 to the first quarter of 2007, OPEC members cut crude oil production by 1.1 million barrels per day to reduce the buildup in global oil stocks. In the coming months, OPEC members will need to consider accommodating rising demand for their oil, especially the demand for seasonal stock building, to maintain inventories in the middle of the 5-year average range. Our estimates for OPEC crude oil production (including Angola) suggest an increase of 1.6 million barrels per day by the fourth quarter of 2007 (compared with first-quarter 2007 levels) would be required to hold inventories to such levels. The largest increase could occur in Saudi Arabia, which is expected to increase total production by almost 250,000 barrels per day. If the majority of the current shut-in capacity in Nigeria of up to 800,000 barrels per day is brought back online, Nigeria could be producing as much as 2.7 million barrels per day by December 2007. However, ongoing unrest in the Niger delta will continue to hinder the return of that production capacity.

Even though new crude oil production capacity increases are projected during the next 2 years in OPEC countries (particularly in the Persian Gulf), continued strong global demand growth and the need for a seasonal inventory build will limit OPEC's spare capacity growth. On balance, EIA expects OPEC spare capacity to average 2.5 million barrels per day in 2007 and 2.8 million barrels per day in 2008 compared with an average spare capacity of 1.3 million barrels per day in 2006. However, recent increases in spare capacity levels due to reduced production have come at the expense of reduced forward supply cover.

Against the background of already tight world markets, global geopolitical uncertainties can create real or perceived threats to global oil supplies and transport. Events can also create spillover effects on neighboring countries. Geopolitical uncertainty in a number of different countries in the Middle East and Western Africa has kept and will continue to keep the market on edge. For example, Nigeria's problems have aggravated the gasoline price situation because the country produces largely

*Figures 1-3 have been retained in committee files.

light and sweet crude oil, which is used by the world's refineries to produce products such as gasoline.

The lack of timely demand data, especially in emerging markets in the Middle East, Africa, and Asia, may also lead OPEC and other major oil producers to misread prevalent market conditions. OPEC members have not yet raised production levels to meet higher demand for their crude oil this summer, including normal stock building. These factors create imbalances in the market, increase market volatility, and cause upward pressure on energy prices.

U.S. GASOLINE MARKETS

The recent rise in crude oil prices, coupled with tight gasoline markets as evidenced by inventories rapidly falling to very low levels (Figure 3), is expected to push average U.S. regular grade motor gasoline prices from an average of $2.24 per gallon in January to an average of $3.01 per gallon in May. EIA expects gasoline prices could then ease slightly in upcoming months before returning to May's levels again by the end of the summer. With refinery production expected to improve during the rest of the May and import volumes increasing over the last few weeks, gasoline markets may ease somewhat causing gasoline prices to recede from their current high levels. However, with the hurricane season approaching, continued tight refinery conditions—both in the United States and elsewhere—low gasoline inventories, and increased demand for summer travel, upward pressure on gasoline prices will remain in force. As a result, the average price of gasoline for the summer driving season (April through September) is projected to be $2.95 per gallon, up 11 cents per gallon from last summer's average.

Gasoline inventories, which typically build slightly in April, sharply declined last month because of the high incidence of refinery outages and low imports. Total motor gasoline inventories at the end of April were estimated to be 193 million barrels, more than 14 million barrels less than last April and 12 million barrels less than the lower end of the typical range for this time of year. Gasoline inventories are expected to remain tight throughout the summer, which will keep pressure on gasoline prices and likely result in higher margins and retail prices than those seen last summer.

Gasoline supply has been affected more than usual by refinery outages this spring. U.S. refineries typically have high outages during the first quarter, reducing production of gasoline and other products. This year, outages have extended into May and, along with low imports and seasonally rising gasoline demand, contributed to the sharp inventory decline and price pressure in April. While accurate statistics on refinery outages are scarce, preliminary refinery inputs in April were about 300 thousand barrels per day lower than the average level for the period 2003 through 2005. (Last year's numbers reflect unusual hurricane-damaged refinery outages.) During April, EIA estimated that domestic refinery outages may have reduced gasoline production by 150 thousand barrels per day over average outages for that period. Refinery throughputs have just begun to show the seasonal increase typical at this time and are expected to increase over the next several months, which should ease pressure on gasoline prices. Should large refinery shutdowns or curtailments occur this summer, gasoline prices could rise well beyond our current forecast, especially given that U.S. inventories (the immediate source of incremental supplies) are already low.

Gasoline imports, critical to meeting U.S. consumption needs, are lagging last year's level and, thus, also affecting prices. Gasoline imports are an important source of supply to the United States in the months leading up to the peak summer season, when they contribute to a seasonal build in inventories before demand peaks, as well as during the summer months. However, in the 10-week period ending April 6, total gasoline imports averaged 920,000 barrels per day, down 220,000 barrels per day compared to the same period last year.

Low gasoline inventories in Europe have resulted in limited volumes available for export to the United States. At the same time, refinery problems in Venezuela have reduced its gasoline exports to the United States by 40 percent, from an average of 75 thousand barrels per day in January through September 2006 to 44 thousand barrels per day in October 2006 through February 2007. In addition, disruptions to refinery activity in Nigeria have caused that country to seek additional gasoline supplies in the world market, thus adding to the global competition for scarce gasoline supplies. Total U.S. gasoline imports have recently returned to around 1.2 million barrels per day. Imports at or above that level are likely to be needed to avoid persistent pressure on gasoline prices.

Prices not only respond to uncertainties in crude supplies, refining, and import availability, but also to weather, particularly the threat of hurricanes, which pre-

sents a major uncertainty in petroleum (and natural gas) market forecasts. Shut-in production from hurricane activity is difficult to predict because the severity of tropical weather and the associated impacts on production have fluctuated widely from year to year. For example, no production was shut-in during 2006 as a result of tropical weather disturbances, in contrast to the devastation caused by Hurricanes Katrina and Rita in 2005. For the 30 years prior to 2005, hurricanes caused a seasonal average of about 4.5 million barrels of cumulative shut-in crude oil production, which is well below the estimated 165 million barrels that was shut-in after Hurricanes Katrina and Rita. Our short-term projections account for the normal seasonality of crude oil production, which reflects, in part, temporary shut-ins resulting from hurricanes. Our current projection of domestic crude oil production in the third quarter 2007 is about 70,000 barrels per day lower than the projected average production rates in the second and fourth quarters, or more than 6 million barrels total for the third quarter. However, should hurricane damage to petroleum infrastructure (upstream and/or downstream) exceed our base case assumption, crude oil and gasoline prices would be expected to increase substantially.

CONCLUSION

The combination of tight crude oil and refining markets, along with ongoing geopolitical concerns, leaves crude oil and gasoline markets poised for continued volatility this summer. However, with refinery production expected to improve during the rest of the May and import volumes increasing over the last few weeks, gasoline markets may ease somewhat causing gasoline prices to recede from their current high levels. However, with the hurricane season approaching, continued tight refinery conditions—both in the United States and elsewhere—low gasoline inventories, and increased demand for summer travel, upward pressure on gasoline prices will remain in force.

This concludes my testimony, Mr. Chairman. I would be pleased to answer any questions you and other Members may have.

The CHAIRMAN. Thank you very much.

Mr. Lindemer, go right ahead.

STATEMENT OF KEVIN J. LINDEMER, EXECUTIVE MANAGING DIRECTOR, GLOBAL INSIGHT

Mr. LINDEMER. Thank you very much, Mr. Chairman, and I would like to thank the members of the committee for giving us an opportunity to present our views on the summer gasoline and crude oil markets.

In our view, market conditions today are the result of three major ingredients. We have long-term changes, primarily in the crude oil availability, particularly high quality crude such as, as Guy mentioned earlier, Nigeria, but there are other factors that are impacting that as well. The second major factor are the short-term aggravating issues of refinery outages, some infrastructure developments, and these, they occur every year. They seem to be getting worse, but when the market is tight they are amplified even more.

The third ingredient is the psychology of the market, which is based on one of supply shortage and worry, and it is justifiably so, given the last two summers, and it is important for us to recognize what some of the underlying issues are.

For the summer, our view is that the crude oil market is going to be, remain in the mid-$60 range. Our view for the summer is about $65, $66 for WTI. But we do expect the gasoline fundamentals to weaken a bit through the summer and we could see some downward drift in gasoline prices.

Particularly the two big issues that we are concerned about are Nigeria, the supplier of high quality crude. Not only is Nigeria a supplier of high quality crude to the United States, it is an incremental supplier elsewhere, and it is becoming more important, par-

ticularly as the North Sea declines as well. Supply is already reduced. In our view, if there had not been political unrest in Nigeria we would probably have another 600,000 or 700,000 barrels a day.

Refinery operations are the other issue. As we transition into the summer with low starting inventories, we are a little late on the typical seasonal gasoline build in inventory, but we expect that that will be under way soon. So for the summer gasoline price, if things move along as planned, as our historic experience has been coming out of maintenance, we would expect that the retail gasoline price will be under some downward pressure even if crude oil is not, and we would expect prices to decline to $2.75 by the end of the summer, with a floor under it of about $2.50 to $2.60 just based on the crude oil price outlook.

So the crude oil price will support something around $2.50 without more fundamentals driving down the crude oil market.

Globally, we expect oil demand to go up about 1.6 million barrels a day, of which less than half will be supplied by non-OPEC, which means that for the rest of this year we are going to need to see probably 900,000 barrels a day more crude oil from OPEC in order to meet demand. We have very strong demand continuing this year, primarily from North America and from China. We do expect that OPEC will eventually increase production, but we believe they are waiting for some market signals for that, in order to take that action. There is an expectation that we will have some strong increases in non-OPEC production toward the end of the year. We are not as optimistic, so we believe that toward the end of the year OPEC will see price signals to raise crude oil prices even further.

For the crude oil market, even if OPEC does increase production it does not really alleviate the underlying fundamental, which is tight light sweet crude oil. OPEC production, particularly the Persian Gulf producers, have a poorer quality crude than the crude oil that we are seeing in tight supply. As I mentioned earlier, we are seeking areas that have traditionally been robust or rising sources of light sweet crude oil, some of them are maturing and starting to decline naturally. For example, the North Sea is down 20 percent in the last 3 years.

For the short term gasoline market, refining margins are now at record highs as well. Retail prices have been moving pretty much in line with what we see happening in the spot market. We believe that the refining margins are at or near their peak, the reason being that we expect refineries to be coming back up from maintenance over the next couple of weeks and supplies will start to loosen up.

The potential for stock build is there, as summer driving season does not really kick in for a few weeks yet. So we would expect to see gasoline inventories begin to rise over the next few weeks. Now, that rise could be rather rapid if refineries restart, as we expect, imports work out well, refineries operate the way we expect, and demand remains moderate. There are a lot of if's. In our view, the market continues to remain extremely vulnerable, especially the gasoline price relative to crude, just based on the tightness of the refining system here in the United States.

So retail gasoline prices, we do expect supplies to be adequate this year. Three primary sources. First, U.S. gasoline production.

I think it is important to mention that U.S. refiners actually 10 of the last 12 months produced record high amounts of gasoline. This is driven in part by response to the very high margins. There is an incentive to invest, there is an incentive to de-bottleneck. In fact, we are seeing more capacity coming on over the next few years that has already been announced. Very little of that is going to impact us for the summer.

Gasoline imports, they have declined over the past several months or few months, but most of the major gasoline suppliers outside of the United States have made the shift away from an MTBE-blended gasoline to blend in components suited for ethanol blending. We expect that the very high refining margins, which, by the way, are reflected in other global markets as well, will begin drawing more imports into the United States and thus we will see that supply loosen up a bit more.

We have another supply source that we have not seen in the past this summer, at least not on a net basis. Ethanol production, as you know, has been increasing dramatically, but we have not seen the contribution to net gasoline production, production increases, due to the decline in MTBE production. So over the last 18 months or so as ethanol has come on, MTBE has been shut down.

This year we have most of the MTBE that was going into the U.S. market is now out. We expect that ethanol will contribute a net contribution, a significant net contribution this year. We expect it will meet at least 50 percent of our expected gasoline demand growth for 2007. So not only do we have refineries coming back, but ethanol is finally making a net contribution to overall gasoline supply.

In conclusion, Mr. Chairman, we do expect crude oil prices to remain high, remain vulnerable to political unrest, particularly in the light sweet crude producing areas like Nigeria, and we do expect that retail gasoline prices, however, are at their peak, that the differential between gasoline and crude oil will come in as refineries come back, ethanol production begins to have an impact on net production. But I must emphasize, both of these are subject to unexpected disruptions. A platform shutdown in Nigeria, a refinery accident here and there, will have an impact. And it will not just impact the United States market; it will impact the entire global market.

Thank you for your time.

[The prepared statement of Mr. Lindemer follows:]

PREPARED STATEMENT OF KEVIN J. LINDEMER, EXECUTIVE MANAGING DIRECTOR, GLOBAL INSIGHT

SUMMARY

The summer crude oil markets are expected to remain in the mid $60 dollar range and gasoline prices to weaken slightly during the summer months. Crude oil and gasoline prices will remain vulnerable to real or perceived supply side events. Key factors that are driving the market today are:

- Political situation in Nigeria. Nigeria is a major supplier of gasoline and diesel fuel rich crude oils which is an incremental source of supply for gasoline production. Supply is already reduced due to political unrest. Further reductions will have a direct impact on crude oil markets and U.S. gasoline prices.
- U.S. refinery operations. With current low inventories and refineries just now ending scheduled seasonal maintenance with some unexpected operating difficulties, a smooth transition to full production will be needed to attain the typ-

ical seasonal gasoline inventory builds over the next several weeks. If this happens, the current wide gasoline spread to crude oil will narrow and could put downward price pressure on retail gasoline prices to a range $2.75 per gallon or slightly lower by the end of the summer. If there are significant additional operating issues over the next few weeks, gasoline prices could be under pressure to increase further.

Short-term Global Oil Markets Outlook Summer 2007

Global Oil Demand: Global oil demand growth is expected to increase 1.6 million barrels per day (b/d) this year. Slightly weaker demand by member countries of the Organization for Economic Cooperation and Development (OECD) because of very mild weather in the first quarter is offset by slightly stronger apparent demand in China. Growth this year will once again be primarily in North America and China.

Non-OPEC Production: After making allowances for delays, disappointments, and accelerated decline, we expect non-OPEC production growth of around 0.7 million b/d this year. Higher growth is possible, but with delays to new production still arising, with the summer maintenance and hurricane seasons still to come, and with accelerated decline taking its toll, growth should be expected to be below announced additions.

OPEC Output and Capacity: Restricted OPEC output has provided a major support for crude oil prices. Publicly, OPEC ministers are describing the market as well supplied and are attributing high prices to geopolitical factors and to a tight downstream. The OPEC Secretariat's very optimistic view of non-OPEC increases later this year explains OPEC's reluctance to consider increases in output. Spare capacity is around 3 million b/d and additional capacity will come on-stream in the fourth quarter, so there should be no problem with raising output when members become convinced of the need to do so.

Crude Oil Prices: This winter has seen the steepest OECD inventory drawdown in several years, with product stocks in North America the largest contributor. Looking forward, the balance is getting tighter but, we assume price signals will indicate the need for increased supplies and that OPEC will respond. That response will be slow in coming resulting in stocks levels being drawn down considerably in the second half of the year. Prices are expected to remain in the mid $60 per barrel range in the second and third quarters (Figure 1),* driven by tight crude markets and competition for available supplies; nevertheless, gasoline-driven pressures should ease with rising refinery output, but are expected to decrease in the fourth quarter as OPEC responds with increased output. Light sweet crude oil supplies which are the incremental source (represented by the benchmark crude oils Brent in EU and WTI in the US) of gasoline production are particularly tight. Declining production in the North Sea and production shut-ins in Nigeria both of which are primarily light sweet crude oils have tightened the market (Figure 4). In addition, on-going concerns over future light sweet supplies in Nigeria are adding a risk premium to the price.

Short-term U.S. Gasoline Markets Outlook Summer 2007

Refining Margins: U.S. gasoline refining margins, which directly impact the retail price of gasoline, will remain wide (Figure 7). However, May refining margins are expected to be at or near the peak. Refineries are returning from schedule maintenance and will be increasing production late May through June. It will still take until at least June before stocks have grown to comfortable levels which support lower prices.

Risks to refining margins are two-fold;

- Continued unexpected refinery operating difficulties that keep production from rising as expected.
- Availability of imported supply. Import levels have fallen from last year's high levels (Figure 2). The decline was the result of falling seasonal demand and rising refinery output. If import levels do not match last year, margins could stay high.

Retail Gasoline Prices: Current average U.S. retail gasoline prices are over $3.00 per gallon. If refiners continue to come on stream as expected over the next few weeks and import availability remains adequate, retail prices are not expected to increase further and may decline to the $2.75 per gallon or slightly lower by the end of the summer.

However, the system remains extremely vulnerable to disruptions and events. The risk of higher prices at the retail level comes from refining operations and the global

*Figures 1-7 have been retained in committee files.

crude oil market. Further events that increase supply concerns materially could drive average gasoline prices to the $3.25 range by end of summer.

U.S. Gasoline Production: U.S. refinery gasoline production is expected to be high this summer as refiners return from maintenance. Refiners have set record high levels of gasoline production in 10 of the last 12 months though gasoline inventories are lower than typical for this time of year (Figure 5 and 6). Production levels are expected to be at least as high as last year and, and possibly higher, after returning to full operations.

U.S. Gasoline Imports: U.S. gasoline imports have declined over the past several months due to seasonal demand trends. Most major foreign U.S. gasoline suppliers have made the shift to accommodate the shift from MTBE to ethanol. Finished gasoline imports have declined since the MTBE ban and blending component imports have increased correspondingly. Current and recent very high refinery margins are expected to attract higher volumes of imported gasoline supplies which in turn will put downward pressure on margins and, thus, gasoline prices.

Ethanol and Oxygenates: Ethanol production has been increasing dramatically since 2002, currently up 250 thousand barrels per day from late 2002 to February 2007 (Figure 3). Corresponding higher gasoline production from ethanol did not occur due to simultaneous declining MTBE production. Recently, MTBE production has fallen to very low levels and ethanol production continues to climb. Higher net gasoline production from rising ethanol has begun to emerge since Jan 2007. This rising net supply from ethanol will continue as ethanol production continues to rise. Ethanol additions in 2007 are expected to meet a significant share of the expected gasoline demand growth in 2007.

KEY CONCLUSIONS

Global Insight expects crude oil prices to remain in the mid $60 per barrel range for the summer with some weakness toward the end of the year. Retail gasoline prices are at or near the peak and should weaken slightly through the summer. However, increased geopolitical tensions or disruptions in major crude oil producing areas could cause oil prices to increase further. Crude oil markets will drive gasoline prices. In addition, additional refining operational issues, such as hurricanes or unexpected outages, will also add to upward pressure on gasoline prices.

The CHAIRMAN. Thank you very much.

Mr. Sankey, go right ahead.

STATEMENT OF PAUL SANKEY, MANAGING DIRECTOR, OIL TEAM, EQUITY RESEARCH, DEUTSCHE BANK AG

Mr. SANKEY. Thank you, Senator. My name is Paul Sankey. I am the equity research analyst on oil stocks at Deutsche Bank on Wall Street, and I would make the point that I am paid as much to recommend my clients sell oil stocks as buy oil stocks and therefore I have no particular bias towards being positive on the oil companies. I cover a range of companies from ExxonMobil down to Calumet Specialty Chemicals.

The second point I would make is I consider myself relatively well qualified to comment on investment in U.S. refining and I will try and take a slightly longer term perspective in order to address that issue, which is so important to us.

I would second the comments of both the previous speakers. There is nothing in what they said that I disagree with. I would make the basic short-term point that what we are looking at here is a situation of demand primarily and secondly supply. On the demand side, we have been very surprised by the strength of U.S. demand this year. With an economy growing at 1 percent only in the first quarter, we saw 2 percent demand growth for gasoline, which was very surprising and a relatively faster rate of growth than we saw in China.

We think that means it is the result of the fact that gasoline here is a staple product. It is driven primarily by demography, not

by economic growth. Ultimately, when you look at gasoline in terms of income levels here and against world prices, gasoline in the United States remains cheap. It is half the price, more or less, of gasoline in Europe, half the price of gasoline in Japan, and you should keep that in mind when you consider the subject.

The other side of the equation obviously is supply. There are two elements there: first, the performance of the U.S. refining system; and second, the level of imports upon which you are dependent. You have 22 million barrels a day of oil demand here. Every day, 22 million barrels a day of oil is consumed, but only 17 million barrels a day of refining capacity. Naturally, that makes you very import dependent and dependent on the price of imports globally.

On the utilization side, which is to say the supply from the existing refining base that you have, we have seen very weak performance this year indeed. There is a number of reasons for that that I will come back to when we take a longer-term perspective on how we got here and why we are here for the third consecutive year.

The second part of the equation on imports relates to the strength of the global economy and the fact that the U.S. economy is now competing for gasoline imports with a weaker dollar. A key point I would make that has not been mentioned so far is the fact that the more oil you import, the wider your current account deficit, the weaker the dollar, the more you need to pay to import enough gasoline to meet your needs. And that is an absolutely vital point in the current context.

If I take a longer term perspective on how we got here, what I would tell you is that in many respects we are in a 30-year cycle. 3 years is simply not enough to address the issues that we face here. If you look back to the beginning of the cycle, it was actually in the late 1970's, when you had a gasoline crisis, enormously high prices, and as a result got lower demand, a starving of investment in refining because essentially companies were losing money by running refineries. That lasted for some 20 years essentially.

What you had was a supply and demand response that eventually led to considerably lower investment in refining, until ultimately we have starved down investment in refining to the point where demand now exceeds supply by some way, as I mentioned. That has a number of significant impacts on the current market.

The first is that, because companies starved capital out of refining, essentially we led to a situation where refineries became dangerous and unstable, and one of the key issues here has been the Texas City disaster. We should not underestimate the scale of that disaster in terms of how much refining capacity it took out of the U.S. supply balance. That is a 400,000 barrel a day refinery, one of the five biggest in the United States, that has been out now for 2 years, a very unusually long period of time.

The second issue is that further to that problem we then had subsequent issues with BP as well, BP with the Texas City refinery, but also at Whiting in Indiana, that has set a second top five biggest refinery in the United States out of commission. In this case, only half the refinery is running, as is Texas City now. But as we have referenced, both are running light sweet crude when they should be using heavy sour crudes.

Of course, what the Saudis will tell you is not that they are gouging the market, but there is insufficient U.S. refining capacity that can use the kind of grade of available crudes they have to allow them to put more oil into the market. I would say the single biggest factor in that has been the issues that BP has faced.

There has also been other issues, though, because the industry is so stretched, notably Valero, with the McKee refinery fire, and that has served to make Mid-Continental margins quite extraordinarily high.

Now, if we again step back and look at the long-term implications of how we got here, there are two impacts. First, the refiners are much more concerned now about safety, quite naturally because of the Texas City disaster. They are much more cautious in how they operate. They are much more ready to shut down, much more conservative in their operations than they were prior to that.

The second impact of the years of reduced investment is that there is a lack of staff available to commit to undertake the work that is required by refiners, both in terms of maintaining their refineries, which are now more difficult to maintain, but also in terms of adding capacity. That is the twofold impact: first, by underinvesting for so many years or starving investment for so many years, a lot of qualified engineers moved into other areas and, as they say, it takes 10 years to get an engineer with 10 years qualifications, so you cannot just find these people again. They are not available.

Second, there is competition from other elements of the oil industry, notably we would highlight Canadian heavy oil sands investment, which is raging at the moment, which is taking away qualified staff who can earn more money elsewhere.

So those are some of the longer term impacts that are also affecting us short term. Then, just as imports are needed more than they ever have been, what we have found, as I said, is a very strong global economy that is essentially competing in two ways. First, naphtha in Asia, which is a key building block of gasoline, the strength of petrochemical demand in Asia is taking away that product. On the other side of the Atlantic in Europe, very strong GDP growth there relatively is causing gasoline margins to rise, just as refineries there are not running well.

When you combine that with the weaker dollar, what you are finding is that you are competing less efficiently to import product, which needs to be priced higher in order to reach these shores. Indeed, we believe some of the impact of what seems to be very high demand for oil in the United States is in fact product being exported away from these shores because it no longer meets the very strong specifications that you have here.

Notably, one of the additional impacts that we have had has been the change of specification that has been forced onto the refiners, that has made it much more difficult for them to supply the market, first with ultra-low-sulfur diesel—we have anecdotal evidence that because you can no longer move the off-road diesel around the country because the ultra-low-sulfur is knocking it out of pipelines, that those who do not necessarily need to use the specification, the low sulfur specification, in fact have been forced to use it because it is not available locally, and the diesel that does

not meet specification is then actually being exported, and that would be a third issue, that we have these very tight specifications now in this country that are exacerbating the problems.

Is ethanol a solution? To an extent it is, but what we are concerned about there is that you are encouraging ethanol through a subsidy. We believe that, if anything, you should allow higher taxes on gasoline to encourage ethanol, not a subsidy to ethanol to compete with gasoline and therefore lower overall prices, because I go back to my original point, that ultimately prices here are arguably very low globally.

So that is where I will leave it. I do believe, as has been said, that we are so low in inventory now here, with just 20 days of forward gasoline consumption, that we may have an emergency this summer, and I would as my final point to you warn you against that potential eventuality. I will leave it there. Thank you.

[The prepared statement of Mr. Sankey follows:]

PREPARED STATEMENT OF PAUL SANKEY, MANAGING DIRECTOR, OIL TEAM, EQUITY RESEARCH, DEUTSCHE BANK

EXECUTIVE SUMMARY

Gouging is an idiotic explanation

Anybody who blames record high US gasoline prices on "gouging" at the pump simply reveals their total ignorance of global oil supply and demand fundamentals. The real reason for high pump prices is the lack of global gasoline supply relative to demand. Just in the US, overall US refining capacity, at 17 million barrels per day (mb/d), is far below demand at 22 mb/d. In turn, pump prices are effectively set by import prices. With strong demand outside the US on the back of global economic growth and a weak dollar, the era of abundant US oil supply augmented by willing international sellers is dead.

The investment cycle drives the story—but it is 30 years long

High gasoline prices will cure high gasoline prices. The reason for the massive recent run up in prices can be traced back to the last significant period of high prices, in the late 1970s, which forced lower gasoline demand, then more efficient cars, which led to excess refining capacity, which led to years of poor returns in refining (and cheap gasoline prices), which disincentivised investment in refining and encouraged demand, and which has ultimately led to today's intense market tightness. It is fair to say that as we enter driving season in 2007, we are one major incident away from a 1970s-style gasoline crisis. There is now US gasoline inventory, at record lows, for just twenty days of consumption.

The poor returns of the 1980s and 1990s have indirectly caused some additional external events that have played into the problems. The years of losing money caused companies to neglect refining investment, culminating in BP's Texas City disaster. Texas City has now rightly caused other refiners to operate more cautiously—and so less capacity is available. Nevertheless, because the industry is so stretched, there have been subsequent accidents, for example, a further BP issue at the company's Whiting, Indiana plant. These two BP refineries alone are two of the five biggest US refineries, now running at half capacity, with some 400 kb/d shut down, and the remaining operating sub-optimally, running rare light sweet crude when they should be using more abundant heavy sour grades. Not all problems are with BP, for example a fire at Valero's McKee refinery has tightened the Mid-Continental refining balance.

A second impact of years of reduced investment has been a lack of qualified engineering, procurement and construction staff. One vital issue here is that the tightness of US refining capacity at this time is not because companies are unwilling to invest in more capacity, it is that they are unable. There is competition from non-refining investment to exacerbate the problem, notably in Canadian heavy oil sands.

Then, just when imports are needed more than ever, European and Asian demand strength has combined with a weak dollar to leave margins higher elsewhere, crimping import levels.

In this tight context the government has mandated tougher-to-make fuels, requiring more refining and plant maintenance. The law of unintended consequences re-

sults in government-mandated ultra-low sulfur diesel (ULSD) being so hard to transport around the country that it excludes higher sulfur off-road diesel from the pipeline system, forcing farmers to use higher quality, more expensive, more difficult to make diesel than they would legally have to, and encouraging the export of off-road diesel to competing global markets.

Ethanol is not a solution. The ethanol "methadone" simply subsidies farmers to grow corn for ethanol using oil-based fertilizer driving oil-powered tractors and serves to make this economic using government/taxpayer's money. Ultimately ethanol subsidy lowers the pump price of gasoline and effectively encourages the cheap gasoline addiction.

US policy makers must stop attempting to re-create a 20th century of abundant and cheap US gasoline, it is as dead as the geology that leaves no more cheap US oil. Avoid additional mandates and allow the market to direct capital towards the areas of tightness. Returns are now high, so US refining capacity IS being added, as fast as reasonably possible, and demand IS slowing. It is vital to allow US gasoline prices to reflect the true cost of supply, which even now they arguably do not do (awful geopolitics, the suffering environment). For this summer, be prepared to take emergency measures (lifting environmental restrictions, emergency IEA gasoline inventory drawdown) should an emergency develop. We are not there yet, but we are close.

WHY ARE GASOLINE PRICES $3?

Inventories are extremely low

The combination of strong domestic demand and weak supply (a combination of weak domestic supply, tight import markets and a weakening dollar) has driven gasoline inventories to extreme lows.

Another important way to look at this measure is in days of forward cover (how many days of demand are held in inventory. This number is just above 20 days at the moment, an extremely low level by historical standards.

Inventories are particularly true low in the Midwest (PADD 2) and West Coast (PADD 5).

DEMAND

US demand for oil (including gasoline) is growing

US and global oil demand is extremely strong, particularly in the face of a slowing US economy. The chart below illustrates total US demand for oil products, which has run +2.7% year to date. Even without the cold-weather related February spike, total US oil demand growth would have been quite strong.

Gasoline, specifically, has seen strong demand as well. Year to date, demand has grown by +1.5%.

It is worth noting this gasoline statistic is likely inflated by ethanol. Ethanol is 30% less fuel efficient than gasoline, meaning that a car will drive 30% less distance on a gallon of ethanol than a gallon of gasoline. As increasing amounts of ethanol are blended into the gasoline pool, the efficiency of our car fleet (miles per gallon) will go decrease. This has and will continue to inflate demand numbers.

Is gasoline as necessary as food? Almost

Gasoline is a staple good. Growth in demand is much more about demographics (increasing US population) and geography (population growth in the West where there is no alternative to driving). Only prolonged periods of high prices, such as the late 1970s and early 1980s, impact consumer behavior.

However, the cost of gasoline to the US economy is not nearly as high as this chart would indicate. The chart below illustrates that the cost of energy to the US economy is still well below its peak from the early 1980s.

In short, gasoline prices are not that high and as our population grows in and shifts to geographies without mass transit, our gasoline needs will only continue to rise.

SUPPLY

US refinery problems, European tightness and a weak dollar have constricted supply

Refinery utilization is very low

US refinery utilization (essentially supply) has been particularly low this year. The chart below depicts utilization, being the percentage of US refinery capacity being utilized in any given week.

There are several possible reasons for this. We believe it is some combination of the following:

- Extended maintenance—Refiners have universally pointed to longer maintenance periods (turnarounds) due to (1) tighter fuel specifications that require more frequent plant maintenance (2) the difficulty in finding and retaining skilled contract labor and (3) the considerable damage to machinery that has been pushed to the limits by strong product demand over the past few years.
- Product specifications—Tightened. product specifications for transportation fuels (i.e. Tier II gasoline, ultra-low sulfur diesel) have made it more difficult to produce fuels. Problems which used to cause a refiner to alter operations now cause one to shut down until necessary repairs are made.
- Safety concerns—In the wake of the deadly explosion at BP's Texas City refinery in 2005, refiners are more concerned about safety than ever. As such, they are much quicker to halt operations than in the past.

Imports are the balancing factor in US gasoline markets

Gasoline imports are the balancing factor in the US market, currently running over 1 mm bbl per day, 10-15% of US consumption. This means that the US gasoline market is influenced by the global refining environment. With economic growth strong around the world, the import markets are tighter, and subsequently higher priced than ever.

Further constricting gasoline import supplies has been the strong global naptha market. Naptha is an early-stage product from petroleum refining, which can be further refined into gasoline or used in petrochemical applications, particularly in Asian chemical plants. The petrochemical demand for naptha has been very strong this year, drawing it away from the global gasoline pool.

Weak dollar

Given the US imports its marginal barrel of gasoline, a weakening dollar drives up gasoline prices. In order to attract imports, the US must pay for them. As the dollar weakens, the price for US consumers rises. The dollar has weakened since the beginning of the year.

The chart below demonstrates the gasoline arbitrage spread between the East coast and Europe (East coast wholesale gasoline price—European wholesale gasoline price—shipping cost). This formula needs to be positive, i.e. US prices are more than the sum of European prices + shipping, in order to attract imports. Recently, this has not been the case, indicating that European wholesale gasoline prices have been very high. The implication is, in order to attract necessary imports, US prices may have to increase.

MYTHS

There are three key myths for policy makers to keep in mind.

Myth: US refining capacity is not growing

While a new refinery has not been built in this country for decades, plenty of refining capacity has been added. The chart below depicts US refining capacity, which as grown steadily since the mid-1990s. US refiners are adding capacity and have significant projects planned out into the next decade.

Myth: High gasoline prices are bad

Gasoline consumption is widely viewed as excessive on the basis of energy security and environmental concerns such as global warming. As discussed previously, over the longterm, the only proven effective way to slow gasoline (oil) consumption is through prices. Given this fact, high gasoline prices can be viewed as a friend to the policy maker.

Myth: High gasoline prices are caused by price gouging

In a rising gasoline price environment, oil companies tend to lose money at the petrol pump, because cost of supply is outstripping price of sales. In fact, spectacular profits for gasoline marketing (the service station) are made in rapidly falling price environments. In neither case do we believe there is systematic price manipulation on the part of the major oil companies.

The CHAIRMAN. Thank you very much.

Mr. Sundstrom, why do you not go right ahead.

STATEMENT OF GEOFF SUNDSTROM, DIRECTOR OF PUBLIC AFFAIRS, AAA NATIONAL OFFICE

Mr. SUNDSTROM. Thank you, Mr. Chairman. I am pleased to be here today before the committee to represent AAA's 50 million members throughout the United States and Canada. AAA is here because we have increasingly found ourselves involved in the great national debate on America's energy future and have been able to fill an important niche in objectively monitoring the price of fuel, advising consumers about fuel conservation, and to a limited degree help motorists anticipate what they might expect to pay for fueling their personal vehicles in the coming months and years.

Because in our view America's energy price challenges are increasing, rather than moving toward a workable solution, AAA intends to engage in public policy debate to a greater extent than ever before and to play a greater role in helping the public understand the choices and consequences of pursuing or not pursuing specific courses of action.

This week American consumers are experiencing the highest average prices they have ever paid for gasoline. They know this because on Mother's Day, Sunday May 13, AAA's daily online fuel gauge report web site recorded the highest ever nationwide average price for self-serve regular gasoline of $3.073 per gallon. Happy Mother's Day, mom.

We have crossed the $3 per gallon threshold twice before. Prices topped out at $3.036 per gallon on August 7 of last year after Israel invaded Lebanon. That price nearly reached the then-record average price of $3.057 per gallon paid by Americans on Labor Day Monday of 2005, after Hurricane Katrina had totally closed or damaged critical oil and gasoline infrastructure along much of the gulf coast.

As frustrating and unpleasant as our two previous national experiences with $3 gasoline have been, both were accompanied by an oil price at or exceeding $75 per barrel and a natural or manmade disaster with the real or perceived ability to block the flow of petroleum for some period of time. This summer is clearly different, however. This year $75 oil prices and dramatic news about hurricane damage or a possible war throughout the Middle East are absent. Instead, we have sky-high gasoline prices as the cost of oil rests comfortably near the $60 per barrel target set by OPEC, amidst crude inventories that are routinely described, at least this month, as plentiful.

Without OPEC, Mother Nature, or an imminent manmade catastrophe to blame for the higher price of gasoline, Americans want to know why. I am certainly not appearing before this committee today to say that AAA has a complete answer to this question. But as near as we can tell, there are strong indications the problem lies, at least in part, with the fact that domestic refineries that supply gasoline to America's network of filling stations, as well as the companies that import gasoline from abroad for sale here, have been slow to supply the wholesale distribution network as consumer demand for their product has continued to rise.

AAA leaves it to the capable experts at the U.S. Department of Energy to cite the specific numbers behind this situation, but we are concerned about the number and frequency of refinery outages

this year, in light of the very large profits the industry has been reporting quarter after quarter for most of this decade.

In fact, the very idea that America should be losing ground in its ability to supply enough gasoline to our economy, not oil, which this committee knows is a different problem, is very troubling. It is troubling because the oil refining business has for several years been described by the international financial community as enjoying a "renaissance" of profitability, and because they and scores of our public and private institutions employ armies of economists and statisticians to forecast the rates at which economies grow, populations expand, motor vehicles are produced, and energy consumption increases.

With all these numbers being collected, exchanged over the Internet and run through computer models, Americans should be able to expect that those who refine oil into gasoline do a better job of anticipating demand growth, plan to meet that growth, and then make the necessary investments in plants, equipment, and labor to provide the fuel at a cost that has at least some semblance of stability.

AAA does not know why refiners appear to be failing at this task, but we do think it would be worth the committee's time and trouble to find out.

With these thoughts as background for our discussion on short-term gasoline prices, AAA would first like to say that no one can know for certainty the price of gasoline this summer. For example, it was our belief the national average price of self-serve gasoline would not exceed $3 per gallon this spring. But this was before anyone knew gasoline investments would drop for 12 consecutive weeks as refiners continued to report equipment problems.

Instead, what AAA tries to do is identify and describe a trend that points to a top or bottom for fuel pricing. We do this to help consumers anticipate what their monthly fuel expenses might be.

With that said, let us look at where we are right now. We know that gasoline investments are critically low, especially on the west coast, our refining and distribution infrastructure is stressed due to maintenance/investment issues, but also, as has been said earlier today, due to introduction of ethanol into the blending process and our ongoing boutique fuel requirements. Increased imports of gasoline, which have been growing, are certainly hoped for this summer, but, as the previous witness said, are not assured. Hurricane season is on the way and much of the world's oil production shipping still takes place in a very dangerous part of the world.

We also know from the demand side that the stock market has just had a record run, the demand numbers reported by EIA remain strong, and the summer travel season, which by the way is important to our quality of life and crucial to the financial success of tens of thousands of tourism-related businesses across this country, is around the corner.

Knowing these things and using our experience watching gasoline prices, the wholesale and retail gasoline prices generated for AAA by our friends at Oil Price Information Service, and the production, investment, and import numbers produced by DOE, AAA thinks prices are likely to move somewhat higher over the next 60

days—after all, in our experience these things have a momentum—perhaps approaching $3.25 per gallon.

But the much-ballyhooed $4 per gallon gasoline that the media has been reporting in our view will not materialize as a national average price unless the oil price in turn marches into the $75 per barrel or higher range, a scenario we think is only likely if an unknowable event such as a hurricane or geopolitical conflict occurs.

In making the projection to the media that a $4 gasoline average was not probable this summer, AAA has been described in the last few weeks by some analysts as "overly conservative" or "not wanting to panic consumers." In fact, our views simply reflect our interpretation of best available data analysis.

In closing, AAA would like to address the notion that if the price of gasoline goes high enough Americans will somehow significantly reduce their gasoline consumption and help solve our energy problem all by themselves. Again, AAA does not believe that Americans are frivolously driving around wasting either gasoline or money. According to AAA's most recent study of driving expenses, it costs 52.2 cents per mile to own and operate a typical new vehicle in the United States. That is over $52 per 100 miles of driving. And that number was calculated using an average fuel price that was much lower than the one we have now.

What we have seen based on many years of watching Americans' driving habits is that motorists reduce their discretionary driving only based on a significant slowdown in the economy, including the possibility of their own job loss, or in response to gasoline shortages, such as we had in the 1970's and the early 1980's. While no one wants to pay high gasoline prices—and by the way, those prices do not inflict pain equally since those at the lower end of the economic scale are disproportionately burdened by the rising prices—much of our driving is essential and not easily traded for other modes of transportation.

Instead, we think rising gasoline prices are essentially a tax on the entire economy, in which overall consumer spending is cut to pay for a commodity that has become in many ways as essential as food or shelter. With the result of geopolitical or distribution factors, the fluctuations in fuel prices underscore the Nation's vulnerability to insufficient supplies and the need to take a broad approach to securing a more diverse and sustainable supply of energy into the future.

AAA acknowledges that fossil fuels must play a critical role in our Nation's economy for the foreseeable future and we strongly believe steps also must be taken to decrease our reliance on oil and refined gas over the long term to ensure the strength of our economy, the security of the Nation, and our way of life.

Thank you very much, Mr. Chairman.

[The prepared statement of Mr. Sundstrom follows:]

PREPARED STATEMENT OF GEOFF SUNDSTROM, DIRECTOR OF PUBLIC AFFAIRS, SE AAA NATIONAL OFFICE

SUMMARY

Introduction

AAA is the largest motorist organization in North America with more than 50 million members in the U.S. and Canada. AAA members drive approximately 25 per-

cent of all the motor vehicles in operation in this country. We estimate they will purchase approximately 33 billion gallons of gasoline this year and at current prices will spend an estimated $101 billion on gasoline.

Impact on Consumer

Since the beginning of 2007, the national average price of self-serve regular unleaded gasoline has jumped from $2.32 per gallon to $3.073 per gallon: an increase of 75.3 cents per gallon. At this price, a typical family owning two vehicles and using 1,200 gallons of gasoline per year spends about $3,687.60, or about $307 each time the monthly gasoline credit card statement arrives in the mail.

Time to exercise more control over our own destiny

1. Motorists must reduce consumption. AAA will continue to educate the public on steps they can take to drive more efficiently.
2. AAA believes the nation—industry and government—must commit to achieving higher fuel economy standards on all vehicles.
3. Government should work with the private sector to develop alternative fuel and vehicle programs.
4. AAA believes that Congress and the Administration should explore measures that would enable a minimum level of mandatory refined product of gasoline inventories. Such a system exists in Europe and was able to provide critical gasoline to the U.S. during production shortfalls that occurred following last year's hurricanes. Should similar or worse disasters occur in the future, our ability to immediately move gasoline to areas that need it will again be critical.
5. More planning must be done to ensure fuel is available during evacuations, in the immediate aftermath of storms or from other widespread damage, and in areas far-removed from a disaster site that might lose access to energy resources.
6. AAA encourages federal and state officials to reach agreement on the use of a smaller number of fuel blends that will meet or exceed our clean air goals and be as widely used as possible.

STATEMENT

Mr. Chairman: My name is Geoff Sundstrom, and I am AAA's Director of Public Affairs. I am the association's primary spokesperson on motor fuel issues and have oversight responsibility for AAA's widely-sourced Fuel Gauge Report Web site which tracks national, state and local fuel prices each day. I also work with local AAA clubs on fuel price inquiries from members and the media in your home states.

AAA appreciates your invitation to appear before the Energy and Natural Resources Committee to discuss the short-term future of oil and gasoline prices. AAA's concern revolves around the impact rising prices have on consumers.

As you may know, AAA is the largest paid-membership organization in North America. Earlier this year we were fortunate enough to have achieved the milestone of having 50 million members in the United States and Canada. Our members drive approximately 25 percent of all the motor vehicles in operation in this country. Using figures from the U.S. Department of Transportation, we estimate they will purchase approximately 33 billion gallons of gasoline this year and at current prices will spend about $100 billion on gasoline.

The important question is: With prices having risen more than 70 cents a gallon this year, are Americans driving less? The fact is that consumers at different income levels are affected differently by higher prices. There are affluent people in America for whom spending an additional $100 per month on gas is not an issue. Some people have other transportation options and flexibility and can reduce their consumption of higher-priced fuel. But the vast majority of Americans have no choice but to absorb the extra $50, $100, or $150 a month in gas prices. They have to go to work, take children to daycare, and go to the grocery. This is not discretionary travel that can be limited.

Like it or not, gasoline is a significant part of many Americans' budgets. When gas prices increase, there is less money to spend on other things. The extra expense results in a sacrifice elsewhere in a family's budget—groceries, healthcare, college savings, retirement planning.

Part of what we do at AAA is help motorists understand what they can do to reduce the burden of high gas prices, from vehicle maintenance to trip-chaining, to purchasing more efficient vehicles, there are things that Americans can do to mitigate the impacts of high fuel prices. We also work to help motorists understand what is going on in the fuel markets, and in times of crises, like after the hurricanes of 2005, to help them understand how their decisions can impact what happens in the market.

Unlike others that frequently comment on gasoline pricing, AAA has no involvement in the regulation, refining, shipping, blending or sale of gasoline. We do not trade oil and gasoline futures, operate hedge funds, sell mutual funds, distribute investment newsletters or make commissions on the sale of energy stocks.

AAA has increasingly found itself involved in the great national debate on America's energy future and has been able to fill an important niche in objectively monitoring the price of fuel, advising consumers about fuel conservation and, to a limited degree, helping motorists anticipate what they might expect to pay to fuel their personal vehicles in coming months and years.

Because America's energy challenges are increasing rather than moving toward a workable solution, AAA intends to engage in the public policy debate to a greater extent and to play a greater role in helping the public understand the choices and consequences of pursuing—or not pursuing—specific courses of action.

This week American consumers are experiencing the highest average prices they have ever paid for gasoline. They know this because on Mother's Day Sunday, May 13, AAA's daily, online Fuel Gauge Report Web site recorded a highest-ever nationwide average price for self-serve regular gasoline of $3.073 per gallon.

We have crossed the $3 per gallon threshold twice before. Prices topped out at $3.036 per gallon on August 7 of last year, after Israel invaded Lebanon. That price nearly reached the then-record average price of $3.057 per gallon paid by Americans on Labor Day Monday of 2005, after Hurricane Katrina temporarily closed or damaged critical oil and gasoline infrastructure along much of the Gulf Coast.

As frustrating and unpleasant as our two previous national experiences with $3 gasoline have been, both were accompanied by an oil price at or exceeding $75 per barrel and a natural or man-made disaster with the real or perceived ability to block the flow of petroleum for some period of time.

This summer is clearly different, however. This year, $75 oil prices and dramatic news about hurricane damage or a possible war throughout the Middle East are absent. Instead, we have sky-high gasoline prices as the cost of oil rests comfortably near the $60 per barrel target set by OPEC, amidst crude inventories that are routinely described as plentiful. Without OPEC, Mother Nature, or an imminent man-made catastrophe to blame for the high price of gasoline, Americans want to know, "why?"

I am certainly not appearing before this committee today to say that AAA has the answer. But as near as we can tell, there are strong indications the problem lies at least in part with the fact that the domestic refineries that supply gasoline to America's network of filling stations, as well as the companies that import gasoline from abroad for sale here, have been slow to supply the wholesale distribution network as consumer demand for their product has continued to rise.

AAA leaves it to the experts at the U.S. Department of Energy to cite the specific numbers behind this situation. But we are concerned about the number and frequency of refinery outages this year in light of the large profits the industry has been reporting quarter after quarter for most of this decade.

In fact, the very idea that America should be losing ground in its ability to supply enough gasoline to our economy—not oil, which this committee knows is a different problem—is troubling. It is troubling because the oil refining business has for several years been described by the international financial community as enjoying a "renaissance" of profitability and because they—and scores of our public and private institutions—employ armies of economists and statisticians to forecast the rates at which economies grow, populations expand, motor vehicles are produced and energy consumption increases.

With all of these numbers being collected, exchanged over the Internet and run through computers, Americans should be able to expect that those who refine oil into gasoline do a better job of anticipating demand growth, plan to meet that growth, and then make the necessary investments in plants, equipment and labor to provide the fuel at a cost that has some semblance of stability. AAA doesn't know the answer, but we do think it would be worth the Committee's time and trouble to find out.

With these thoughts as a background for our discussion on short-term gasoline prices, AAA would first like to say that no one can know with certainty the price of gasoline this summer. For example, it was our belief the national average price of self-serve regular would not exceed $3 per gallon this Spring, but this was before anyone knew gasoline inventories would drop for 12 consecutive weeks as refiners continued to report equipment problems. Instead, what AAA tries to do is identify and describe a trend that points to top or bottom for fuel pricing. We do this to help consumers anticipate what their monthly fuel expenses will be.

With that said, let's look at what we know right now: We know that gasoline inventories are critically low especially on the West Coast; our refining and distribu-

tion infrastructure are stressed due to maintenance/investment issues, but also due to the introduction of ethanol into the blending process and our boutique fuel requirements; increased imports of gasoline, which have been growing, are hoped for but not assured; hurricane season is on the way; and much of the world's oil production shipping still takes place in a dangerous part of the world.

We also know the stock market has just had a record run, demand for gasoline remains strong, and the summer travel season—which is important to our quality of life and crucial to the financial success of tens of thousands of tourism-related business across this country—is around the corner.

Knowing these things, and using our experience watching gasoline prices, the wholesale and retail gasoline prices generated for AAA by Oil Price Information Service, and the production, inventory and import numbers produced by DOE, AAA thinks prices are likely to move somewhat higher over the next 60 days, perhaps approaching $3.25 per gallon. But the much-ballyhooed $4 per gallon gasoline will not materialize as a national average price unless the oil price marches into the $75 per barrel or higher range—a scenario that is only likely if an unknowable event such as a hurricane or geo-political conflict were to seriously threaten or disrupt energy flows. In making the projection to media that a $4 per gallon average gasoline price was not probable, AAA has been described in the last few weeks by some analysts as "conservative" and "not wanting to panic" consumers. In fact, our views simply reflect our interpretation of the best available data and analysis.

In closing, AAA would like to address the notion that if the price of gasoline goes high enough Americans will significantly reduce their gasoline consumption and help solve our energy problem. Again, AAA does not believe that Americans are frivolously driving around wasting either gasoline or money. According to AAA's most recent study of driving expenses, it costs 52.2 cents per mile to own and operate a typical new vehicle in the United States. That's $52.20 to drive 100 miles—and this number was calculated using an average fuel price from the fourth quarter of last year of just $2.26 per gallon.

What we have seen based on many years of watching Americans' driving habits is that motorists reduce their discretionary driving only based on a significant slowdown in the economy and the possibility of job loss, or in response to gasoline shortages. While no one wants to pay high gasoline prices—and those prices do not inflict pain equally since those at the lower end of the economic scale are disproportionately burdened by rising prices—much of our driving is essential and is not easily traded for other modes of transportation. Instead, we think rising gasoline prices are a tax hike on the overall economy in which overall consumer spending is cut to pay for a commodity that has become, in many ways, as essential as food and shelter.

Whether the result of geopolitical, refining, or distribution factors, the fluctuations in fuel prices underscore the nation's vulnerability and the need to take a broad approach to securing a more diverse and sustainable supply of energy into the future. AAA acknowledges that fossil fuels will play a critical role in our nation's economy for the foreseeable future, but we strongly believe steps must be taken to decrease our reliance on oil and refined gasoline to ensure the strength of our economy, the security of the nation, and our way of life.

Thank you again, Mr. Chairman, for allowing AAA to address this Committee on this critically important topic.

The CHAIRMAN. Thank you and thank all the witnesses for your good testimony.

We have lots of Senators here to ask questions. Let me start and we will just do 5 minutes each.

First, Mr. Sankey, you talked about the fact that we have 22 million gallons of gasoline used in this country every day, I believe was the figure you gave.

Mr. SANKEY. Barrels.

The CHAIRMAN. Barrels of gasoline?

Mr. SANKEY. No, no.

The CHAIRMAN. Of oil.

Mr. SANKEY. It is about 9 million, 9.5 million barrels a day of gasoline and 22 million barrels a day in total of oil.

The CHAIRMAN. Okay, 22 million barrels of oil. But you indicated we have refining capacity of 17 million barrels?

Mr. SANKEY. Correct.

The CHAIRMAN. So there is a 5 million barrel difference there.

Mr. SANKEY. Correct.

The CHAIRMAN. That has to be made up by imports.

Mr. SANKEY. Correct.

The CHAIRMAN. Given the price of gasoline and the price of oil and everything and the incentives that seem to be there, the financial incentives, why can't we cause that additional refining capacity to be built? Why is that not occurring as a natural result at this point?

Mr. SANKEY. Well, it is. The companies are investing in more refining capacity. The problem they have had is that as recently as 2002 they were losing money, so they have only recently started to get conviction that it is a good idea to invest in more capacity. We had very poor refining margins, indeed, post-9/11, and that event has never fully—the external event is never fully out of the picture, obviously. Since then we have had nothing but strong economic growth, which again we have to see whether that continues.

But I would say it is only in the past year and a half that the companies have really gotten conviction that they want to invest aggressively in U.S. refining capacity and that there is not sufficient supply globally to meet that. Now what we are finding, as I say, is that they are all rushing to try and add capacity and finding there is not enough staff, there is not enough steel, there is not enough ability to add the capacity at the right kind of rates of return that they are prepared to estimate going forward. That is why we have been unable just to sort of turn the lights on for more refining capacity. It is easier said than done is what I would say to you.

The CHAIRMAN. Let me also ask about the problem of the outages at refining. Maybe, Guy Caruso, you could give us your view there. It seemed like in the previous hearings we have had we have talked a lot about why—is there any kind of a system for reducing the extent of the outages or the outages occurring all at the same time, or whatever?

My understanding today is that there is no system. Not only is there not a system for reducing that, there is no real system for keeping track of it. So it is just strictly up to each refiner as to whether or not to shut down for maintenance or whatever action is intended. Is that the circumstances? And if so, is there an action we could take or the Government could take or the Department of Energy could take to try to make more sense of this and reduce the number of days that these refineries are out of operation?

Mr. CARUSO. That is correct, there is no reporting system required of companies when they have outages. There are a couple problems. One is not all outages are planned. Paul mentioned the tragedy at BP Texas City. There have been other fires and obviously hurricane-related. So these kinds of unplanned outages are a factor.

The CHAIRMAN. In 2005 we had the hurricanes and in 2006 we had Israel invading Lebanon. This year there may be some circumstances that are unexpected, but not near as many as we had the previous 2 years as I see it.

Mr. CARUSO. That is correct, there have been some unplanned outages this year, and indeed some of them have extended beyond the normal, what we normally would be expecting, which is usually in the first quarter, sometimes spilling over into April. This year, even as we speak here in May there is a significant amount of outages, some of which are unplanned.

Now, the second part of the question is: If we had a system would it matter? Our view, and in the paper that we prepared for you, is that oftentimes the companies themselves do not even know. Obviously they do not know about the unplanned, but even in planned outages sometimes they shut down a refinery or one unit within that refinery and they discover that it is—the problem is either more difficult or complex than they thought, and therefore the actual impact on gasoline production, for example, which is what we are talking about today, they would not have even known that. If they had reported that, that there were going to be this number of shutdowns or outages, I am not sure whether we would have enough information there to be able to make I think a good decision on whether or not this should be deferred or what have you.

So I think it is far more complicated than perhaps, let us say, producing steel. When you are shut down one line, you know that means 20 tons of steel less. With refineries it is far more certain—or less certain.

The CHAIRMAN. All right, my time is up. Senator Domenici, go right ahead.

Senator DOMENICI. I am going to let Senator Craig Thomas take my turn and then come back for me, and go another way.

The CHAIRMAN. I think Senator Bunning was the next in seniority.

Senator BUNNING. Go right ahead.

The CHAIRMAN. It does not matter, whichever one you want.

Senator THOMAS. Okay, well, I will just jump in there, then. Thank you.

Mr. Sankey, you mentioned price-gouging in your testimony. How much has been invested, how much has been done, to devote investigating this issue, and how many times have we found it actually occur?

Mr. SANKEY. We believe that there has been sufficient investigation by both Democratic and Republican administrations to indicate that at a U.S.-wide level this cannot be affecting the market. There may be some very regional, very specific instances of rogue behavior, but it is my firm belief as a stock analyst that no company that I cover—and I told you there is a big range of them—is stupid enough to try and make money by gouging the U.S. consumer.

The simple fact is they do not need to right now. Frankly, they are making so much money just by the nature of the market; that what you want to do is let the market continue to operate in its own good way, to allow higher gasoline prices to moderate demand, hopefully without damaging the U.S. economy too much, and encourage more supply.

Senator THOMAS. That is a great concept and I agree with it. But if that is the case, most any time when you have great markets and so on, why, you also have investment, like in the refineries. When

the market is there and the price has stayed high, I do not understand the lack of incentive to invest.

Mr. SANKEY. The incentive is there and the companies are now investing. It is just, as I said, not an issue that you can find 4 years after companies were making losses, that you suddenly have an exponential increase in refining capacity. It is just not that simple. There is a very tough market out there for any kind of infrastructure investment, as I mentioned with Canadian heavy oil sands. You have got competition from Asia, you have got competition from Europe.

These companies now are increasing their spending. No less than ExxonMobil has a higher refining and marketing expenditure this year than last by some way. The fact is that the companies are deploying capital to the best of their ability.

One thing that disincentivizes them from investing is the potential for changes in regulation and distortions in the market brought about by government interference. One thing that they are scared of is that gasoline investigations in Washington will lead to regulations that ultimately cause them to lose money if they invest now. So in my opinion it is very strongly in your interest to maintain a stable regulatory environment to encourage investment.

Senator THOMAS. I agree with that. On the other hand, if lack of infrastructure is causing the price, and yet the investors are not increasing the infrastructure, that seems to be a little bit of a contradiction.

Mr. Caruso, you mentioned major factors that influence gas prices. Which ones do you believe could be impacted by the Government, that we could do something on?

Mr. CARUSO. Well, I think the point that Paul just made about regulatory certainty is probably number one. One of the great concerns is that making an investment which then, for perhaps good reason, then becomes uneconomic as a result of change in regulation—the phase-out of MTBE is one example, but there are a number of other examples.

A year ago our leading regulatory expert, Joann Shorr, who is with me here, was at the National Petroleum Refiners Association and took a poll of companies, and at that time they were, in 2006, had plans to add roughly 1.5 million barrels a day of distillation capacity over the next 5 years. This year she went and talked to them again and now the plans for adding capacity are actually substantially lower than they were a year ago. Part of the reason was uncertainty as to whether demand will be there when the capacity comes on-stream 3 to 5 years from now. Some cited the ethanol or biofuels component of the future demand uncertainty, and large numbers being discussed in Congress and in other parts of government. That again made them think. If we spend $3 billion on a refinery, will there be the demand there to sell our products 5 years from now?

But I think that would be—if I had to pick one, that would be the number one.

Senator THOMAS. It looks like there is a pretty good chance there would be a demand.

Very quickly, Mr. Sundstrom, do you think alternatives like coal-to-liquids can do something if we hurry along that? Can that have an impact?

Mr. SUNDSTROM. Well, to build on comments of my colleague over here, I think the important thing is that we have a consistent energy strategy over the long term that is clearly understood, not only by industry but by Americans, so that we can all plan our personal and corporate investments.

Senator THOMAS. Thank you.

The CHAIRMAN. Senator Wyden.

Senator WYDEN. Thank you, Mr. Chairman.

Mr. Sankey, a quick question for you. You make the point in your testimony that in the 1980's and 1990's there were poor returns for the companies and that contributed to their problems. But now we also have the problem of starving investment in refineries, but we have record profits. Certainly that has been the case for the last 5 or 6 years. Why would not the companies have invested in refinery and infrastructure, the things you thought was missing in the 1980's and 1990's, over the last 5 or 6 years?

Mr. SANKEY. I think, Senator, this goes to the same point, which is that you had the combination of actually losses in 2002, as recently as, and then I guess that the changes that we have seen in regulation with the potential threats to gasoline as a fuel that you want to make in this country if you are talking about an investment of $2 or $3 billion. It is immensely expensive now to add refineries. There is a huge amount of uncertainty over how much it will finally cost you because of all the other challenges that there are out there with adding global energy infrastructure, competing away the staff and the materials to do the job. And then on top of that you have the uncertainty of the regulatory environment to really undermine your confidence.

Even amongst all that, we do have some fairly significant investment going on right now. One of the subtleties here may be that at a headline level we are not adding that much capacity, but in terms of our ability to upgrade more complex, heavier sour crudes there is very definitely a surge in investment going on, and you should be aware of that.

Senator WYDEN. I can see the argument, and you make it eloquently in your paper, for not going forward with investment in the 1980's and 1990's. It does not make sense now, given these record profits.

Mr. Caruso, I want to ask you about the role of speculation in all of this and the price per barrel. Now, half of the cost of gasoline is considered to be the price of crude oil, so speculation in the price of crude has a direct result on the price of gas. Now, Lee Raymond, who was formerly the CEO of ExxonMobil, came to the committee not too long ago and he said speculation accounts for about $20 of the price of a barrel of oil. That was at the time he came to the committee.

In your view, how much does speculation account now for the cost of a price of a barrel of oil?

Mr. CARUSO. In our view the main focus, the main purpose or the main driving forces in this market are supply, fundamentals of supply and demand.

Senator WYDEN. So Lee Raymond was wrong that speculation——

Mr. CARUSO. I would disagree with his estimate.

Senator WYDEN. You would disagree?

Mr. CARUSO. I think there is some element of speculation or risk concern in that price, but I do not think it is anything like $20, because one of the reasons investors would be buying forward would be to hedge against potential changes in supply or demand. I think that to me is not speculation. That is concern over your source of, whether it be crude oil or a product. There is some of that in the market, there is no question about that.

Senator WYDEN. As the commodity prices rise, Mr. Caruso, the cost of buying and holding inventories of extra oil increase, unless you speculate that it is going to go higher, and that sure looks like what we are seeing if you track the pattern over the last 4 or 5 years. What information does your agency collect from hedge funds and traders on how much physical delivery they take and hold? I am trying to get at the bottom of this question of who is holding the extra oil today.

Mr. CARUSO. We rely on the data that is collected by the Commodities Futures Trading Commission, the CFTC. They are the part of government that regulates and collects data on futures and forward markets, including speculators.

Senator WYDEN. Those are futures, though. I want to know who is holding the oil today. I want to know about this question of who is taking physical delivery now.

Mr. CARUSO. We do collect supply and demand data on a weekly and monthly basis on a company by company basis. So at the primary level——

Senator WYDEN. Can you get us that information? You know, I always have you come and talk to us about these issues relating to how you collect it and then you tell us on a company by company basis, and then whenever we try to get the facts you say it is proprietary and the debate ends. Can you get us the information about which companies are physically taking and holding oil now?

Mr. CARUSO. I would be happy to provide whatever is available, possible.

Senator WYDEN. So you are not going to say this time it is proprietary?

Mr. CARUSO. It may be. I will have to—we collect all of the data on the pledge of confidentiality on a company by company basis.

Senator WYDEN. Right.

Thank you, Mr. Chairman.

The CHAIRMAN. Senator Domenici.

Senator DOMENICI. Senator Bunning.

Senator BUNNING. Thank you, Mr. Chairman. Thank you, Senator Domenici.

As you all know, Senator Thomas and I have been pushing coal-to-liquid fuels during the past few years. These fuels can be blended directly with diesel and aviation fuel without new infrastructure. Their near-zero sulfur content would help refineries exceed new ultra-low-sulfur environmental requirements cheaper and more efficiently.

Based on the characteristics of this fuel and that it can be made right here at home, could you describe what impacts coal-to-liquid fuels could have on fuel prices?

Mr. Caruso, your statement today described several important reasons for high gasoline prices, such as refinery capacity and environmental regulations. We are working on biofuels legislation right now to help get more domestic fuel in the marketplace. Do we have the infrastructure refineries needed to blend all these additional fuels? And I am talking about all of them, whether cellulosic ethanol or corn ethanol. All of these require different types of refining to make the product that goes into the machinery, whether it be diesel, whether it be aviation, whether it be automobile gasoline.

If there is a major profit to be made, and it seems like there is, at $45 a barrel all of these fuels would be profitable if we built the refining capacity to deal with them. Am I wrong or right?

Mr. CARUSO. There are a substantial amount of new refineries being added to. It is not new refineries, but there is a significant amount of investment that is going on to add refinery capacity at both the primary and in the deeper conversion level. So some of that is happening. We have had about a million barrels a day over the last 5 years.

In terms of biofuels, the capability to blend biofuels into gasoline, that investment is taking place rapidly. We have gone from less than a million—a billion gallons of biofuels to, we will probably do more than 5 billion this year. So that is happening and we do see that growing dramatically as a result of——

Senator BUNNING. Do you see Texas City, BP's Texas City refinery, coming back on line any time soon?

Mr. CARUSO. I am not—it is partially back on line.

Senator BUNNING. Well, I mean to the capacity that it once produced.

Mr. CARUSO. They are proceeding very cautiously. They do expect it will——

Senator BUNNING. Paul, do you have a better idea?

Mr. SANKEY. The company's official guidance there is that they will be fully back at capacity by the end of the year.

Senator BUNNING. By the end of this year.

Mr. SANKEY. The other subtlety I mentioned to you is that they are having to use light sweet crude right now, as opposed to the heavy sour crude, which is what they would ultimately use.

Senator BUNNING. In other words, they have to buy a specifically different type of crude oil to refine than they normally would have had they been at normal capacity?

Mr. SANKEY. Yes. This is the kind of crude that we are talking about from Nigeria and from West Texas, which is rarer, more expensive, a higher yield of gasoline.

Senator BUNNING. I have one other question, because in the bill that we just passed out of the committee it mandates 21 billion gallons of cellulosic ethanol by the year 2022. I support developing cellulosic fuel, but believe it is dangerous to mandate unproven technology, unproven, when we have a lot of proven technologies. In fact, the very first study in this same biofuels legislation requests a National Academy of Science study on whether the cellulosic mandate is even feasible.

Mr. Caruso, in your testimony 2 months ago you predicted that less than one billion gallons of cellulosic fuel would be available by 2030. Could you and the rest of the panel tell this committee what effect on prices this new mandate could have?

Mr. CARUSO. Well, that very much goes back to the point you made, and that is it depends on whether technology actually is developed that will make that amount of cellulosic-based ethanol available at a reasonable cost. Our projection, as you correctly point out, is much lower and it is based on current technology and current economics, which at this point are——

Senator BUNNING. It does not have the incentives, the tax, the loans, and things that we have in the bill.

Mr. CARUSO. That is correct.

Senator BUNNING. But given that fact, it is less than we have mandated?

Mr. CARUSO. Yes, that is correct.

Senator BUNNING. Does anybody else have a—I have already run over my time. I am sorry.

Mr. SANKEY. We second the view on the unproven technology and the difficult of adding it. I think the simple solution here—and we have said this all along—is demand. If we can get demand down, you do not need to worry so much about supply.

Senator BUNNING. Thank you, Mr. Chairman.

The CHAIRMAN. Senator Dorgan.

Senator DORGAN. Mr. Chairman, thank you very much.

I am trying to understand this issue of the marketplace, because I do not think there is a free market here at all. You have got the OPEC countries, the OPEC ministers sitting around in a room. You have got the major oil companies, bigger, stronger, more muscular in the marketplace through mergers. You have got the spot market that has far more speculation in it than ever before.

Then with respect to refining, as I understand it the top ten refiners own over 80 percent of the refinery capacity and the major integrated oil companies themselves own over 50 percent of the refining capacity.

So I used to teach a little economics, too. But as I listened to you talk about the supply-demand relationship and how it would naturally work here, I think it is a perverted system that is not a, quote, "free market," unquote, that would react in the ways you would normally think a market system would react.

So I will make one other comment and then ask you a question. I recall—and I am not suggesting there is a parallel here; I do not know. I recall all the witnesses sitting at a table when we talked about the west coast electricity market, the wholesale market, and just dismissing anyone who suggested there was something untoward going on: Shame on you; let the market system work; this is the market system.

Well, it turns out it was a criminal enterprise, not just with one company, a good number of companies. And I am just trying to understand here whether we are looking hard enough to understand, what the ingredients are here—Mr. Sundstrom I think suggested that—is it in the interests of a major integrated oil company to move very quickly to address the refining issue if in fact you nar-

row the neck at the refinery you actually provide a greater boost to prices, which is a greater boost to profitability?

Mr. Sankey, you want to try that?

Mr. SANKEY. I think it is a very difficult question that they are debating themselves. If I would look at it another way, what I would say to you is if you look at the stock market, which is a freely traded view of the merits of any given business, why is it that a refining stock trades at probably five times earnings? It is probably the cheapest stock you can actually buy in the market, as opposed to a Google at maybe 30 times earnings.

Clearly, on Wall Street we have a view that this business is not sustainable, it is not going to be attractive in 10 years time. We can see the might of the U.S. political establishment looking at addressing this issue and as a result the companies are very reluctant to invest. This is really going back to the point of the instability of the regulatory environment being the key threat. In my opinion—and I totally take the point you make on the electricity market—in my opinion, the oil companies are not colluding to force the price of gasoline higher.

I think one of the issues here is they do not need to. Actually, the fact is that the price is so high already that, if anything, they are very anxious not to collude in any way and not to gouge the market. We saw, to remind you in the testimony that I have written, that in a very rapidly rising price environment they lose money at the pump. They cannot keep up. In fact it is when price is falling that they tend to make more money.

Senator DORGAN. Well, but the pump is one aspect. I notice in your testimony you talked about price, quote, "gouging," unquote, at the pump. But as you know, this is a stream. I think over 80 percent to 90 percent of the oil that is moving around this world is moving in part, or I should say in part or whole, by companies that are either in part or whole owned by foreign governments, or by governments themselves.

So I just find it kind of interesting that we keep talking about the marketplace as if it was a free market. Nothing could be further from a free market with respect to what is happening with oil.

Mr. Sundstrom, do you disagree with that?

Mr. SUNDSTROM. No. To the contrary, we completely agree with what you said about the various forces around the world that are controlling energy output and supplies. Frankly, what occurs to us is what we are experiencing with the energy industry akin to what has happened in other industries in the United States? Refining of petroleum is essentially a manufacturing business and through disinvestment, perhaps decisions made individually by each company on their own, are we watching the slow erosion of America's ability to produce sufficient energy domestically in favor of moving that offshore?

Senator DORGAN. Mr. Caruso, if that is the case, and it probably is the case, that is very dangerous with respect to the dependency issue.

Mr. Caruso, is your one billion gallons significantly at odds with the statements and the goals of President Bush? I certainly support his notion about cellulosic ethanol and so on. But it seems to me

that your projection here by the year 2030 is at odds with what the President is talking about.

Mr. CARUSO. Well, it is not at odds when you look at what the assumptions are. The assumptions are, as Senator Bunning pointed out, it does not include any of the subsidies or the potential policy changes. So ours is based on existing policy when we made that projection and existing technology. I think the President's very ambitious goals are assuming, of course, change in policy, change in the money that would be spent in R&D and other.

Senator DORGAN. So if you assume those changes in policy, the one billion gallons is irrelevant, is it not, or largely irrelevant?

Mr. CARUSO. Yes. Ours is a scenario, a scenario that policy does not change.

Senator DORGAN. A scenario that does not exist.

Mr. CARUSO. If you say to me—and Senator Bingaman has—look at this change in policy, whether it be a renewable portfolio standard or climate change issues, we have done studies that said what if you pass legislation that changes that. Then you come up with——

Senator DORGAN. My only point is that scenario then is a scenario that does not exist at this point, because we have already moved beyond that with respect to tax credits, loans, fuel standards, and so on.

Mr. CARUSO. When those are passed and in place, we will include them in our next projection. What we do is every year we update our projections to include the latest policy change.

The CHAIRMAN. Senator Domenici.

Senator DOMENICI. Senator Craig.

Senator CRAIG. Thank you very much, Mr. Chairman, for this hearing.

Gentlemen, thank you. I went to the floor on May 1, and in a very loud voice said: "Mayday, Mayday, Mayday. This is America's gas consumer speaking." From that day until today in Idaho gas has gone up a cent a day, a not unusual scenario across the country. So maybe I need to go yell out again if this is going to continue. But I hear some sense of maybe moderation into the summer.

I also find it very, very fascinating. Mr. Sankey, you talk about where the industry saw itself going and therefore projecting investment into the future refinery capacity until we began to get busy talking about alternatives. And now I understand maybe there is a little backoff in relation to that investment.

So let me ask this question of any of you who would like to respond to it. If in fact we meet our challenges that we have challenged ourself to of 30 billion gallons of biofuels over the extended period of time we are talking about, some cellulosic, some corn, we get a 4 percent annualized CAFE increase mandated by law, do we need any new refinery capacity?

Mr. SANKEY. No.

Mr. LINDEMER. I agree, none.

Senator CRAIG. Will we stimulate investment in refinery capacity if we continue to proceed in this manner?

Mr. SANKEY. No.

Mr. LINDEMER. I think the only thing you will see is a creep to meet short-term market needs and meet any kind of regulatory requirements on the refining system.

Mr. SANKEY. You know, if you can lower demand here, you can look at it as adding capacity for free on the supply side. This is what the oil companies are terrified of, is that if you can somehow get people to drive more efficient cars, if you can get ethanol working in a market competitive manner, then what you will be doing is adding refining capacity for zero dollars.

Mr. LINDEMER. I think one thing to add is, you talked about the 22 million barrels a day of demand and 17 million barrels a day of refining capacity. The U.S. refining system is actually quite low cost compared to the rest of the world, so if we start adding biofuels you may not need to add in refining capacity, but the first thing that would probably happen is you will back down imports of imported gasoline or blending components.

Senator CRAIG. If we were to add into that, which we have not yet, the concept of coal-to-liquids—it is not in that scenario I just gave you—that almost assures no additional capacity, or at least on the margin a little, I assume, until we would anticipate these kinds of approaches coming on line. Reaction?

Mr. SANKEY. Well, coal-to-liquids definitely helps if you do not care about CO_2. I mean, you have to recognize that what you have here is a refinery that will turn a barrel of oil into a barrel of a range of products, but about 5 percent of the energy content lost. The equivalent for coal-to-liquids would be about 50 percent of the energy, and you have a massive CO_2 impact. If CO_2 is not a concern, then coal-to-liquids is a great way forward, and I have often—in fact, I have suggested in previous testimony that the Government should build the Strategic Petroleum Reserve from coal-to-liquids, and in that way stop the Government from competing in the market, because that is what you are doing by buying crude to fill the SPR. That is how I see—that is one of the key things I believe your government should be doing.

The second would be, as an aside, what you are doing effectively with coal-to-liquids, which is research and development. What we have not mentioned is that the poor returns in refining and in oil for the past 20 years means that we really have not looked at research and development very hard here at all, which is why cellulosic ethanol is so interesting. Where you have been worrying about research and development has been in the drug companies and trying to find a cure for cancer and AIDS. No one has really looked that hard at energy relative to the potential for us to do more here, and I thoroughly encourage you to do that.

Senator CRAIG. My last thought in relation to a greater degree of independence on the part of this country in supply is proven reserves and the development of those reserves in the Outer Continental Shelf, and we have made some moves in that direction. Guy, in your comments you talk about OPEC and their response and their decision to keep their hands on the valve and to keep it relatively closed at a time when we would need it.

A combination of things, gentlemen. Do we affect world price of crude in light of the demand if we do what I said earlier, recognizing we are still going to need a continual stream of hydro-

carbons out into the near future, or out into the distant future, that we will need to continue to develop our reserves and to assure the knowledge of those reserves to the industry here and at the same time increase capacity in these areas of the biofuels? Would that affect our price at home?

Mr. CARUSO. I think it definitely would affect the price. And not only that, but, going back to Senator Dorgan's comment about, indeed there is not a truly free market, because obviously OPEC is withholding supply, it would also make it more difficult for either OPEC or individual members to have greater control of the market. The reason OPEC has been successful, if you will, over the last several years is the lack of spare productive capacity. When there is no alternative, which there is not right now, Saudi Arabia has almost all the spare productive capacity in the world as we sit here.

So doing what you have said, a combination of things to increase supply and reduce demand, would certainly, all other things before equal, lead to more spare productive capacity, making it more difficult for any group of countries to manage the market as they are doing now.

Senator CRAIG. Well, Mr. Chairman, I make that scenario with this knowledge, that the northern Saudi oil fields adjacent to the Iraqi border stay productive. If they were to have in any way a down side as a result of current politics and strife in the region, then you set up a whole new scenario for time, especially if those fields came off line. That I think is a concern we all have at this moment as we look at the broader picture.

I guess, Mr. Sankey, you would not at that time be able to predict what the future would look like?

Mr. SANKEY. Well, refining is notoriously difficult to predict. You have got to think last year was a record year and the companies made losses in 2 of the months of the year last year.

What I would say to you on OPEC is that the Saudis are the least of your problems. The five biggest members of OPEC are Iran, Iraq, Nigeria, and Venezuela. The Saudis are the least of your problems.

Senator CRAIG. Do not remind me of that. Thank you.

Mr. SANKEY. One thing that we always interest our sales people by saying is that 72 percent of the world's remaining oil reserves are Muslim, and of the remaining 28 percent 20 are in Venezuela and Russia.

Senator CRAIG. Do not remind me of that either. Thank you.

The CHAIRMAN. Senator Lincoln

Senator LINCOLN. Thank you, Mr. Chairman.

Mr. Sundstrom, in your testimony you talked about the disproportionate effect that the high gas prices have on low income consumers. I have talked about that many times and it is certainly especially true in my State, where a significant percentage of our population is at or below the poverty line and the public transportation is enormously limited, in rural States like Arkansas.

You talked about the AAA's efforts to educate consumers on what they can do to reduce their gasoline consumption. We have talked here about energy consumption in general and conservation and what a direct impact that has. But what do you think that maybe

the Federal Government, what could we do to better inform citizens on the role that they can play?

Mr. SUNDSTROM. Thank you. AAA in combination is the largest magazine publisher in the United States. We routinely print articles on the fuel economy of various models, what you can do to tune up your vehicle to increase your fuel economy, ways to organize your personal commute and errands and things of that nature. So those are the types of things that we do.

We have been advocating that our members purchase more fuel efficient vehicles for many years now and, frankly, we are glad to see that the American consumer has begun down that path to a limited extent.

But what you say about—or what you are echoing in my statement about the fuel price disproportionately affecting some members of society is so true. Let us face it, there are folks in this town and other places as well for whom $5, $6, $7, $8 a gallon gasoline is not going to influence the vehicle that they choose to drive or how frequently they choose to drive it. But for much of the rest of the social strata the $3 gasoline that we are paying right now is almost unbearable.

Senator LINCOLN. Well, I have to echo that because for the working Americans that live in Arkansas when you are talking about $3 a gallon it is almost cost prohibitive to go to work because they have to travel such great distances. It certainly begins to minimize the amount of things that they engage in with their family, whether it is children's activities, school field trips, and other things like that, not to mention the small vacation trip that might be possible, that will no longer be possible as you creep up much above $3 a gallon.

Mr. SUNDSTROM. Sure, and that is one of the reasons that AAA supports tightening of the CAFE requirements.

Senator LINCOLN. We appreciate that.

Mr. Lindemer, it appears in your testimony that you hint somewhat that OPEC is not being entirely honest in their assessment of the world's gasoline market and how that really relates to their restricted production. If you could just kind of elaborate on that, specifically I think as it relates to OPEC's assessment of increased non-OPEC production outside of the five countries that Mr. Sankey just mentioned?

Mr. LINDEMER. Sure. Thank you. We have spent much of the last 25 years living with the legacy of surplus capacity within OPEC, which has given us by and large very low oil prices and low gasoline prices up until about 2 or 3 years ago, when all that spare capacity was worked off. OPEC has learned a hard lesson. If you go back to the—it was only in 1998 and 1999 that almost every segment of the oil industry was losing money because of surplus capacity in just about everything.

That caused a lot of people to actually look for the exits in the industry and really question the long-term viability of the business. Where OPEC is now is you have—you can look out ahead, and we all do. We look at demand, we look at potential supply changes, and there is the potential for some rather large non-OPEC increments to production coming on in the fourth quarter.

We are not as optimistic as a lot of the views on how much oil is going to come on. So I think what you are seeing happening with OPEC is they want to hold. If you increase production too much and all that production actually did come on line in the fourth quarter, then you defeat the goals of OPEC, which is to maintain a price, a stable price at a given level.

So I think what they are waiting to do is to see just how much of that oil is likely to come on line, like we all do. We wait to see how this is going to evolve.

Our view on this is that these projects get delayed, there are operating issues, startup issues, and so we are not so optimistic that that much oil is going to come on, and OPEC will have to increase.

Senator LINCOLN. Thank you, Mr. Chairman.

The CHAIRMAN. Thank you.

Senator Murkowski.

Senator MURKOWSKI. Thank you, Mr. Chairman. And thank you, gentlemen, for your testimony this morning.

It is interesting. Last year when we had this hearing we were talking about how we were going to deal with the ever-increasing prices for gasoline, what it means to us. And the discussion at that time was it was truly an increase in the refining capacity or an anticipated increase in that. And then to hear the comments this morning in response to Senator Craig that in fact that might not be the answer necessarily, that it is the policies that we implement here in Congress, whether it is increased CAFE standards, whether it is the policy decisions that are being made as they really need to in biofuels.

What a difference a year makes. What a difference a few months makes when we are talking about some of the policy considerations.

Mr. Caruso, I wanted to ask you—we heard from just about all of the panelists here the real weak spots, the points of vulnerability, whether it be the situation in Nigeria, whether it is refining capacity. I am wondering if there are any bright spots that you consider on the short term horizon in terms of new discoveries, additional exploration, that might lead us to have a little bit greater certainty when it comes to the supply side.

I do not recall if you had mentioned Canada, but we understand that they are certainly looking to ramp up production in their tar sands. The question is will we see the benefits of that? Where does this go from the Canadian perspective?

If you can kind of speak to that, please.

Mr. CARUSO. Yes. Thank you, Senator. We definitely see some bright spots on the upstream side. Angola certainly is one. We do think there will be 200,000 to 300,000 barrels a day of new capacity per year for the next several years there. The other one that you mentioned, of course, is the oil sands in Canada. We do continue to see very substantial investment into the oil sands in Canada, adding 1 to 150,000 barrels a day per year.

So we are getting some response to this very profitable, high price environment. But as several speakers have pointed out, it has been a bit less on the non-OPEC side than many analysts had projected just 2 years ago. Part of that is that the decline rates in existing, in older fields such as the North Sea and our own country,

of course, but elsewhere around the globe, are a bit steeper than some of us had thought. So the net effect on non-OPEC supply is that it is not increasing enough to meet the increase in demand in a very strong global economy from China.

So yes, there are some bright spots. They are less than we thought. The other element that I think has been alluded to is the cost of doing business continues to increase dramatically. The cost of steel, concrete, precious metals, and the human resources, engineering services are also raising the cost structure of finding and developing these new sources.

Senator MURKOWSKI. We know that.

Mr. Sarkey, you very briefly touched on the Strategic Petroleum Reserve and mentioned that it would be your suggestion and proposal that the Strategic Petroleum Reserve be filled with coal-to-liquids, which kind of gets me to an issue that I have been talking about as it relates to Alaska. We have been trying, as you know, to develop our North Slope assets on the ANWR area and have not been able to get congressional approval.

If the United States could rapidly expand the size of its Strategic Petroleum Reserve, if the fuel could come from a source other than being acquired on the open market, would that help to stabilize the prices or at least help to protect us in terms of shortages? I think you suggested that we have a 20-day available supply currently.

Mr. SANKEY. That is right, of gasoline inventory. You have very low, and I think there is a very important subtle point here, which is that if the Government stores oil the companies will stop storing oil, and you must be very aware of that. So you will find that over the period of the development of the SPR our friends at Exxon and the other big companies have naturally stored less and less oil, in the knowledge—without I think any illegal behavior, but in the knowledge that ultimately there is a supplier of last resort if that becomes the requirement.

The reason we suggest the coal-to-liquids or, as you are suggesting, perhaps a supply from ANWR is that ultimately the oil market is set at the margin, and if you are competing as a government to buy oil, even 100 or 150,000 barrels a day annually, what you will find is that you are altering prices, just because the oil market only grows by a matter of really at most a million barrels a day globally. So that the U.S. Government there is 10 percent of growth, if you like, in the market, that need not necessarily be stored by you.

That is why I would suggest that you exit competing for the scarce oil and enter competing in an area where the oil is not otherwise being supplied, which would be coal-to-liquids or your suggestion.

Senator MURKOWSKI. Thank you, Mr. Chairman.

The CHAIRMAN. Thank you.

Senator Menendez.

Senator MENENDEZ. Thank you, Mr. Chairman. I appreciate you calling this hearing. I appreciate you calling this hearing and I appreciate all of our panelists.

You know, over the past few years in particular it seems like bracing for the onslaught of record high summer prices at the gas pump has become as common as planning for the summer family

vacation. And for many of those families, obviously, how far they are able to travel depends upon the price at the pump, as well as the ripple effect it has on our economy, tourism, as it relates to businesses, those who have sales forces that have to drive, those that have distribution systems to get product to market. So that the ripple effect as well, beyond for the motorist for the economy and to consumers.

We see prices rise and fall. We understand the concept of a changing supply and demand chain. That is not foreign to us. But I think when we see no singular event, no visible cause for the increase in prices, consumers try to figure out. They scratch their head and try to figure out what is happening.

This is the third year in a row in which consumers are facing gas prices above the $3 mark. Yet there is no devastating hurricane this year. There is no clear single recent event at a refinery or in an OPEC country that explains why in the first half of May consumers are already experiencing sticker shock.

I have heard some of your answers, but I want to explore some of them a little bit more. Mr. Sankey, when you say that there is no price manipulation through the whole supply chain, then why do prices always seem to spike during the greatest times of motorist activities, such as the summer or Memorial Day weekend? To many people, they clearly must wonder.

Now, I know it is a question of demand as well. I am sure that is part of the answer. But it also seems to me that we find ourselves uniquely that it is in these time periods that the prices spike, and if—is that just convenience or it conveniently happens that way? Is it just pure coincidence?

Mr. SANKEY. Well, just going back to the idea that there is no single issue, I would highlight once again that BP has two of the five largest refineries in the United States effectively running at half capacity right now because of the safety issues that they face there and just the fact that they are unable to run them, which would be what I would point out as a really major, if you like, one off event that has lasted several months, even 2 years in the case of Texas City, but which I am sure BP would not have wanted to have done that deliberately. I mean, there is no question that it is an accidental situation that they are in.

Senator MENENDEZ. Should we expect an accident a year?

Mr. SANKEY. Well, I think that what is happening is because of this issue of underinvestment or reduced investment for 30 years when there was no profit being made in the business, what happens is that now that you have got very tight spare capacity and equally in terms of OPEC as well barring the Saudis, what happens is you have an extremely seasonal market, because at times of demand runup what happens is that you begin to exceed available supply. When you begin to exceed available supply, prices rise exponentially, attempting to price out demand or encourage more supply.

When you are in such a tight situation, what you will find is, as Mr. Caruso highlighted, in winter you will suddenly get tightness in natural gas and heating oil because there is not that available spare capacity to address the sudden seasonal rise in demand, and when you get to driving season, because everyone loves to go to the

beach on Memorial Day, what you will find is you exceed available supply and then prices rise exponentially because there is no way to supply more.

Senator MENENDEZ. Let me just explore a little bit more with you. In your testimony you say that when gasoline prices rise oil companies tend to lose money because the cost of supplying the gas outstrips the price of the sales. However, if we look back to September 2005 gas prices hit an all-time high for the year, but oil companies were raking in record profits of around $32.8 billion and continue to do so today. They did not lose that much money.

Mr. SANKEY. No. I think there is an important subtlety here. The gouging at the pump idea is clearly one that is not one that is worth exploring in my view, because they lose money at the pump when prices are rising very rapidly at a wholesale level. In refining, clearly they make enormous amounts of profit. And I think that some of the Senators here who have questioned whether the refiners are deliberately not running in order to rise prices, is a better area to look. It is not one that I subscribe to personally as a deliberate behavior pattern on the part of the oil companies, but to me it is a smarter area of concern.

Senator MENENDEZ. I appreciate that.

Is there not a reality that we are paying for some industry decisions that actually reduced refining capacity in this country? I mean, there was a time that we had greater refining capacity and the industry reduced that refining capacity, and as a result of making that decision consumers today find themselves with exactly the circumstance or the consequence of the circumstances that you have so adequately described in your testimony before.

Mr. SANKEY. Yes. I mean, this is what we are saying, that it is a 30-year cycle, not a 3-year cycle. Really, the losses in 2002 were the end point of the weak environment cycle that finally dissuaded the very last investment from being made. Now we are on the up cycle. Everyone is actually scrambling to try and invest more, but they are canceling projects, not from sinister reasons, but because they simply find that the expense and the ability to progress these projects is prohibitive.

Senator MENENDEZ. My point is that the reduction of refining capacity helped drive up cost.

Mr. SANKEY. Yes, but that is the market. If we were in the Soviet Union and that happened you could argue that there was some sort of deliberate behavior pattern. But in reality it was simply years and years of losses that caused the companies to stop investing in refining. Have they gone too far in the other direction? Absolutely, that is clear from current gasoline prices.

Senator MENENDEZ. And that has produced good profits along the way.

Let me ask one last question. Mr. Sundstrom, I have heard various, Mr. Sankey and others, say that if you reduce demand therefore you will increase supply of that as you move to other sources. So is it not really that we need to go to higher fuel efficiency in our automobiles, and where should we be at in that respect?

Some of us have been advocates of 35 miles per gallon.

Mr. SUNDSTROM. Well, I do not have a particular number in mind, but clearly we do need to move to more fuel efficient vehicles

overall. I think we are all familiar with the migration from large SUVs and pickup trucks that were de rigueur at the end of the 1990's to the very healthy interest in hybrids and other types of very fuel efficient vehicles that are being produced domestically as well as by offshore automakers.

I think in terms of decreasing demand for petroleum products, obviously alternative fuels have a big role to play.

Senator MENENDEZ. Mr. Chairman, I have one last question, if I may.

Mr. Caruso, let me ask you this. If we were to go to—I saw the President's announcement and it is a step in the right direction. I think it needs more teeth. But the question is if we were to go to 35 miles per gallon on CAFE standards, what would be our savings in terms of gasoline in this country?

Mr. CARUSO. Well, our long-term outlook has the average new car sales and the change to the buying pattern that Mr. Sundstrom referred to already moving in that direction, but not to 35. I think our 2030 expectation right now, based on consumer behavior without any change in policy, is we go to an average new car efficiency of 29. So going to 35 would definitely reduce the demand for gasoline.

Senator MENENDEZ. What do we save at 29?

Mr. CARUSO. And I would be happy to provide——

Senator MENENDEZ. Do you know what we save at 29?

Mr. CARUSO. We are about, I think it is about a million barrels a day lower than where we are, just on that factor alone.

Senator MENENDEZ. So if we increase it almost another 30 percent——

Mr. CARUSO. I would be happy to provide that.

Senator MENENDEZ. I would love to see the numbers.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank you.

Senator Domenici.

Senator DOMENICI. Thank you very much, Mr. Chairman.

Thank you, witnesses. You have done a great job. We appreciate it very much.

Let me call to your attention that, Mr. Caruso, in your testimony on page 5 you describe what the OPEC cartel did, saying that in the third quarter of 2006, first quarter of 2007, they made a decision to cut production by 1.1 million barrels per day, to reduce the buildup in global oil stocks. Now, when they made a decision in the past of that order sometimes they all lived by it, sometimes they did not. But they did this time, is that right, so far?

Mr. CARUSO. Not 100 percent, but enough to definitely affect the market and lower inventories. Their compliance was I think about between 60 and 70 percent, but I will get the correct number for you.

Senator DOMENICI. In any event, it is pretty clear they did not—they were not concerned about the impact on our prices. They knew what the impact would be and they were affecting it so that we would have an increase on our side on the price of gasoline, right?

Mr. CARUSO. That is correct, Senator.

Senator DOMENICI. And now if we do not want to—if we want some assistance, then we have to ask the Saudi Arabians to move

in the opposite direction and to produce about 250,000 barrels a day increase. You have indicated that in your testimony. Then you said that if the majority of the current shut-in capacity in Nigeria of up to 800,000 barrels is brought on line, Nigeria could produce as much as 2.7 million barrels by December 2007. The unrest in Nigeria continues to hinder the return.

So what you are saying here is that whatever we get from Nigerian increase could disappear. If it is the will of the Saudi Arabians in OPEC concert, they could knock down the positive effects that come from Nigeria, right?

Mr. CARUSO. That is correct, Senator. They have that——

Senator DOMENICI. Now, let me talk a minute, a couple of minutes, about Senator Craig's question to you where he stated three things that might happen and then asked what does that do to the refining capacity need, and you said, the answer to it, you said if that happens we do not need any new refining capacity. Do you recall what he said?

Well, incidentally let me tell you, it seems from talking to Senator Bingaman and listening to what is going on that those very things that he talked about are scheduled to go to the floor of the Senate within the next 2 or 3 months. That is, both of them, the bill from this committee to produce the new quantity of ethanol 2020, by the 2020 date, and also the Commerce Committee has produced a CAFE standard compromise at 35 miles.

When you add together, those together, you get exactly what he was predicting and showing to you. Do you really think if we pass those in both houses and send them to the President and they became law that the oil companies would not have to continue to build any refining capacity?

What do you think, Mr. Sankey?

Mr. SANKEY. Yes. We would have to see the exact numbers, but certainly the combination is positive and it is one that we are advocating as the way to address the problems here, which is to address the demand side above all else and do not interfere too much in the supply side if you can help it, because it is not in the best interests of getting more investment.

So we would have to calculate the numbers, to be honest with you, to work out exactly, but approximately any lowering of U.S. gasoline consumption will be beneficial because of the way that this business is set at the margin. So every percent that you save is disproportionately important. We are not trying to get U.S. consumers off gasoline.

Senator DOMENICI. But what happens to OPEC under those circumstances?

Mr. SANKEY. Well, again what you will find is that you lower oil prices and ultimately, you may ultimately cause so much instability in OPEC you end up with higher oil prices. That is the nature of the beast here. But certainly in the short term if you can alleviate the problems of U.S. refining through lower gasoline demand you'll find that headline oil prices are considerably lower.

We have referenced at times here the impact of speculators on the market. We think that the impact of tight refining is a much greater impact on the reason for very high oil prices right now at

a headline level, much greater than any potential impact of the way the market prices, the commodity in the future.

Senator DOMENICI. Well, it seems to me that for the first time, at least for the first time in my presence, it was explained very, very succinctly why we have a refining capacity shortage. Some people say it in an accusatory manner. It was explained here. One might make it an accusatory argument, even though you have stated the facts. But it is pretty clear that it was not in the best interests of the oil companies to build refining capacity and they did not do it, and we let that condition go on and create a fragile situation, and then we had a big accident and made it worse, and as a consequence we do not have the capacity. And the Saudis have even come here and asked us why we were not going to build more and they said, if you do not we will, and they were going to build a new huge refining capacity added on to theirs. I do not know if they have started it or not. Do any of you know?

Mr. SANKEY. The refinery is due to be onstream in 2010.

Senator DOMENICI. So they are going to build more refining capacity for their own crude oil, is that right?

Mr. SANKEY. I think they are telling the truth when they say that they tried to sell more oil to the United States, but they have been unable to because nobody can buy their grades of crude. It is a genuine statement by the Saudis because they do not have the refining capacity to process it.

Senator DOMENICI. Right.

Well, I am going to ask, Mr. Chairman, that we, with your concurrence, that we take the actual policy that we assume would be before us and the changes that would be made and that we submit them to Messrs. Sankey, Lindemer, and Caruso and ask them to make their assessments of what that would do to our need to import crude oil and our refining capacity and let that be made part of our record.

The CHAIRMAN. All right, we will be glad to do that.

Again, thank you all for being here. We are more than halfway through a vote on the Senate floor, so this is a good time to adjourn the hearing. Thank you very much.

[Whereupon, at 11:52 a.m., the hearing was adjourned.]

[Subsequent to the hearing the following letter was received for the record:]

API,
GOVERNMENTAL AFFAIRS,
Washington, DC, May 14, 2007.

Senator JEFF BINGAMAN,
Chairman, Senate Committee on Energy and Natural Resources, Dirksen Senate Office Building, Washington, DC.

DEAR CHAIRMAN BINGAMAN: I am writing to express our great concern about growing accusations that our nation's refining industry is manipulating capacity and production to drive up gasoline prices.

Refiners are producing record amounts of fuel to address record demand levels and historically low gasoline imports. We see no evidence to support the accusation that refiners are withholding supplies or otherwise manipulating the market. In fact, we see overwhelming evidence to the contrary.

Our nation's refiners are investing in new technology, expanding capacity, increasing gasoline yields per barrel and conducting appropriate maintenance in order to ensure the long term viability of refineries and the safety of our workforce. Main-

tenance work at our refineries can only be deferred and delayed for so long; eventually, it must be done.

A few key points:

- Since last year, refinery capacity has expanded by 200,000 barrels per day;
- Over the last ten years, our industry has added the equivalent of 10 new refineries;
- Publicly announced plans indicate our industry will add the equivalent of eight more new refineries by 2011;
- To date this year, our refineries have produced a record 8.85 million barrels of gasoline per day; and
- Gasoline demand in the first quarter was at a record high.

I am pleased to attach a document that should address many of the concerns being expressed.* This material is fact-based, with sources cited. I hope this information proves useful. Should you have any questions, please do not hesitate to call on me. Thank you.

Sincerely,

JAMES E. FORD,
Vice President.

*The attachment has been retained in committee files.

APPENDIX

RESPONSES TO ADDITIONAL QUESTIONS

DEPARTMENT OF ENERGY,
CONGRESSIONAL AND INTERGOVERNMENTAL AFFAIRS,
Washington, DC, July 18, 2007.

Hon. JEFF BINGAMAN,
Chairman, Committee on Energy and Natural Resources, U.S. Senate, Washington, DC.

DEAR MR. CHAIRMAN: On May 15, 2007, Guy Caruso, Administrator, Energy Information Administration, testified regarding the outlook for oil and gasoline prices for the summer driving season.

Enclosed are the answers to 20 questions submitted by Senators Wyden and Domenici to complete the hearing record.

If we can be of further assistance, please have your staff contact our Congressional Hearing Coordinator, Lillian Owen, at (202) 586-2031.

Sincerely,

ERIC NICOLL,
Acting Assistant Secretary.

[Enclosures.]

QUESTIONS FROM SENATOR WYDEN

Question 1a. EIA Projections: In February, EIA's Short-term Energy Outlook projected benchmark crude oil to be $60 in 2007. A month later in March, you projected it would be $62. In April you projected it would be $65. Now you are projecting it to be $66. In March, you projected gasoline would average $2.60 this summer. Now you are projecting an average price of $2.84 a gallon with peak prices over $3.00. I realize these projections are more art than science, but EIA seems to keep missing the mark here, consistently underestimating what prices are going to be even within the 30 day schedule of the Short-term Energy Outlook.

What information or analytical capability is EIA lacking that is preventing it from being able to forecast conditions in the petroleum markets even on a month to month basis?

Answer. EIA uses a complex U.S. regional model—the Regional Short-Term Energy Model (RSTEM)—to develop the monthly Short-Term Energy Outlook (*STEO*). The model relies on an extensive database that includes energy production, imports, exports, inventories, consumption, and prices. The model uses these data, along with expectations about future conditions, such as weather, to estimate econometric relationships for demand, supply, inventories, and prices. These relationships are used to forecast monthly energy market outcomes across key sectors and regions throughout the U.S. For example, the model uses weather forecasts (heating and cooling degree-days and hurricane outlooks) published by the National Oceanic and Atmospheric Administration (NOAA). Of course, actual weather outcomes often deviate from these projections, which significantly impact energy markets. Such deviations materially change the snapshot of current market conditions of subsequent forecasts.

Price volatility is a characteristic of the current tight petroleum markets. Any real or potential disturbance to petroleum demand or supplies such as unusual weather, unscheduled refinery disruptions, or geopolitical uncertainty in oil-exporting regions can all result in large price increases in a short period of time. Prices can fall as rapidly under a different set of circumstances, such as an easing of geopolitical frictions or the onset of unseasonably mild weather.

The rollercoaster ride of crude oil prices at the start of this year is a good example of how our forecasts can be affected by unforeseen events. Between mid-December 2006 and January 18, 2007, the spot price of West Texas Intermediate (WTI) crude

oil fell by about $12 per barrel to a low of $50.51 per barrel as warm weather reduced demand for heating fuels throughout most of the country. As the weather turned colder than normal, the WTI price quickly rose to almost $62 per barrel by the end of February. In March the WTI crude oil price began to decline again. Then, during the last 10 days of March, the WTI crude oil price increased by more than $9 per barrel to over $66 per barrel in response to tensions with Iran, a major oil-exporting nation.

The volatility in crude oil prices shows up not only in EIA forecasts but also on the NYMEX. While the STEO WTI average 2007 price projections published in early February, March, and April increased from $60 to $62, then to $64, the NYMEX light sweet crude oil average 2007 price (calculated on the days that the *STEO* was published) similarly increased from $60.33 to $64.42 to $64.66.

The recent unexpected surge in gasoline prices has been much more dramatic. Unplanned outages in crude oil refining capacity, not only in the U.S. but also Europe, Nigeria, Venezuela, and other countries, in an increasingly tight global product market, have led to one of the largest declines in U.S. gasoline inventories in history, resulting in gasoline stocks at the beginning of this driving season at the lowest point in at least the last 20 years. Because the extent and duration of the unscheduled refinery outages could not be anticipated, the decline in inventories and increase in wholesale gasoline prices were missed in our earlier forecasts.

A program to monitor and assess forecast errors has already been implemented and a program is underway to evaluate the contributions of unpredictable events such as weather to our forecast errors. Also, our experience with the impact of increasingly "tight" markets on petroleum prices has suggested improvements in our forecasting models that we will pursue. For example, new techniques for estimating the impact of increasing price volatility on market expectations and outcomes will be studied.

Question 1b. What information are refiners required to report to EIA on refinery outages and utilization levels?

Answer. As indicated in our March 2007 report on refinery outages prepared for Chairman Bingaman, EIA does not collect data on refinery outages directly. Weekly data give indications of outages in that refiners report product output and crude oil inputs. Abnormalities in these data require EIA to turn to commercial sources and trade press to determine if an outage may be involved versus a data reporting error.

In addition, large outages can be inferred from the monthly data collected on inputs to the major refinery units. Monthly input data are available for distillation, fluid catalytic cracking, catalytic hydrocracking, and coking units. Outages are likely to be the cause of any substantial drops in inputs to those units. For example, if a unit normally runs at 60,000 barrels per day of input, but it experiences an outage for a week, the input level for the month would only average about 77 percent of the 60,000 barrels per day, or about 46,500 barrels per day for the month. If the unit were out only for a day, it would average 58,000 barrels per day, or 97 percent of the typical operation. The input at 58,000 barrels per day may also be the result of the unit being operated all days, but at a reduced level due to reduced crude input to the refinery or to achieve a balance across the whole refinery. The data do not show the size or duration of reduced inputs within the month—only the average reduction for the month.

Question 1c. What statutory authority does EIA have to require refiners to report refinery outages and utilization levels in real time and is this authority adequate?

Answer. Section 13 of the Federal Energy Administration Act of 1974 (FEAA), Public Law 93-275 (15 U.S.C. § 772), provides the authority for the Secretary of Energy to request information from all persons owning or operating facilities or business premises who are engaged in any phase of energy supply or major energy consumption. The Secretary has delegated to the Administrator of the Energy Information Administration functions vested in the Secretary by law relating to the gathering, analysis, and dissemination of energy information. EIA also has the authority to collect information consistent with its statutory authorities as set forth in Section 205 of the Department of Energy Organization Act, Public Law 95-91 (42 U.S.C. § 7135). The authorities mentioned above are adequate to support the collection of information on refinery outages and utilization levels in real time.

However, EIA's decisions on what information to collect are subject to numerous other considerations including information quality, practical utility, costs (both to the government and burden on the respondent), and other trade-offs necessary for EIA to present the best overall energy information program. Costs to collect refinery outages and utilization levels in real time, accuracy and usefulness of what could be collected, and availability of such information elsewhere are important to this question. While companies could initially report on units that are down or are planned to be down, they would not likely have the most critical information, i.e.,

what will be the impact on product production. That information is known after the fact, and can be seen, along with unit input variations, on the monthly forms reported to EIA by refiners. The on-going outage picture can be seen to some extent with ETA's weekly data on refinery inputs and product output. Also, unit outage information (without product production impacts) is available through commercial sources. EIA has compared its monthly data with commercial data and found the commercial data were relatively consistent with the EIA data. The outage impact estimates made in our testimony are based on commercial data and our weekly reported information.

Question 1d. Can and will EIA make refinery-specific outage and utilization information in its possession available to the Committee?

Answer. EIA does not have refinery-specific outage data, as indicated above. The refinery utilization level data, which EIA does have, is business-confidential. Section 59 of the Federal Energy Administration Act of 1974 (FEAA), Public Law 93-275 (15 U.S.C. § 790h), provides that energy information shall be provided to committees of Congress upon request, and may not be disclosed except under certain conditions.

EIA believes that the interest in refinery-specific outage information can be better served through other means. First, commercial sources assemble outage information that is consistent with our aggregate data, as indicated in our March 2007 refinery outage report to the Committee. Second, if the interest in the outage data is connected with any issues pertaining to market power or other business behavior questions, the Department of Justice and the Federal Trade Commission have the authority to collect specific information from companies to pursue such questions. The EIA Administrator's statutory direction to carry out a central, comprehensive, and unified energy data and information program correctly does not place EIA in the position of ensuring regulatory compliance or conducting legal investigations.

Question 2a. Imports of gasoline are running 5 to 6% below last year at the same time refinery utilization is down. Why are gasoline imports down when U.S. wholesale gasoline prices are up over $2.00 a gallon which should be high enough to bring in imports?

Answer. The differential between wholesale prices in the U.S. and Europe, rather than the absolute level of U.S. prices, is the key economic signal for gasoline imports. In order to encourage gasoline imports from Europe—the marginal supplier of gasoline to the U.S.—the differential between wholesale prices here and in Europe should be above 10 cents per gallon. From April 16 through May 25, the differential exceeded 10 cents per gallon on just 15 out of 30 business days, with most of the days exceeding that threshold occurring in the last couple of weeks. This explains why gasoline import volumes have increased recently, helping to increase inventories, at least slightly.

Question 2b & 2d. What information does EIA collect on individual importers and how their import volumes compare with prior periods and prior years? Can and will EIA make company level import data available to the Committee?

Answer. Approximately one-and-a-half months after the end of a given month, EIA makes data on company-level imports available at the following web page: http://www.eia.doe. gov/oil__gas/petroleum/data__publications/company__level__ imports/cli.html.

This web page includes a link to an Excel spreadsheet that provides data on companies, the type of product imported, the volume imported, the destination, and many other characteristics. There is also a link to historical data on company-level imports. All of this is available to the Committee and the public.

Question 2c. What statutory authority does EIA have to require importers to report the volume of their imports in real time and is this authority adequate?

Answer. Section 13 of the Federal Energy Administration Act of 1974 (FEAA), Public Law 93-275 (15 U.S.C. § 772), provides the authority for the Secretary of Energy to request information from all persons owning or operating facilities or business premises who are engaged in any phase of energy supply or major energy consumption. The Secretary has delegated to the Administrator of the Energy Information Administration functions vested in the Secretary by law relating to the gathering, analysis, and dissemination of energy information. EIA also has the authority to collect information consistent with its statutory authorities as set forth in Section 205 of the Department of Energy Organization Act, Public Law 95-91 (42 U.S.C. § 7135). The authorities mentioned above are adequate to support the collection of information on imports in real time.

However, ETA's decisions on what information to collect are subject to numerous other considerations including information quality, practical utility, costs (both to the government and burden on the respondent), and other trade-offs necessary for EIA to conduct the best overall energy information program.

Oil speculation—"excess" inventories: As commodity prices rise, the cost of buying and holding inventories of extra oil increases, unless, of course, you are speculating that it will go still higher. And that's just what appears to be happening in the U.S. In 2003, the average spot contract price for crude oil in the U.S. was $26.87 according to EIA. At the time, the U.S. stocks of crude oil averaged between 18 and 19 days of supply. The average price in 2004, rose to over $35, but again, U.S. stocks averaged between 18 and 19 days of supply. But in 2005, the price of oil rose to over $50 dollars with stocks rising to between 20 and 21 days of supply. During 2006, average crude prices rose more, to almost $60 a barrel and crude stocks rose to almost 22 days of supply. And this spring prices were still over $54 dollars a barrel with stocks edging higher to 22 days of supply or better.

Question 3a. What company level information does EIA collect from hedge funds and other commodity traders and other speculators on how much physical delivery of crude oil, gasoline, and other petroleum fuels they are taking and holding?

Answer. EIA collects data only from those companies which hold physical volumes. Furthermore, ETA's inventory data is collected on a custody basis, not ownership basis. Thus, the terminals where inventories are held report to EIA. A terminal may store inventories owned by a number of companies. Since most hedge funds and other traders don't generally hold physical volumes, EIA would not have information on these specific companies.

Question 3b. During your testimony before the Committee you disagreed with the assessment that speculation had added a significant additional increment to the market price of crude oil. What additional increment do you believe speculation has added to the current price of crude oil, how does this compare to previous periods, and what is the basis for your conclusion?

Answer. EIA has undertaken many analyses into what factors affect the near-term price of crude oil. While we acknowledge this is one of the hardest issues to understand, we have done some modeling work that indicates that global inventories relative to normal levels, along with the volume of usable spare crude oil production capacity globally, can account for most of the current crude oil price. These two variables alone can help explain all but a couple of dollars per barrel of crude oil prices. While speculators can add or subtract some from the price on a daily basis, the modeling and analyses we have done on this issue suggest that, over time, fundamental factors such as inventory levels and the volume of spare production capacity ultimately drive crude oil prices.

Question 3c. What assessments does EIA perform of the commodities and futures markets and the relationship of those markets to the wholesale and retail prices of crude oil, gasoline, and other petroleum fuels and how those are reported?

Answer. EIA does not perform any assessments of the commodities and futures markets, but EIA uses commodities and futures market information in its analysis program from time to time. Recently, two EIA employees studied historical volatility and found that volatility in spot markets was the same or slightly greater than volatility in the nearby futures contracts and that volatility in spot markets was greater than in the more distant futures contracts. T. K. Lee and J. Zyren, "Volatility Relationship between Crude Oil and Petroleum Products," *Atlantic Economic Journal* (2007) 35:97-112

Question 3d. What statutory authority does EIA have to require hedge funds and other commodity traders and speculators refiners [sic] to report their physical settlement and storage of oil, gasoline and other petroleum fuels and is this authority adequate?

Answer. Section 13 of the Federal Energy Administration Act of 1974 (FEAR), Public Law 93-275 (15 U.S.C. § 772), provides the authority for the Secretary of Energy to request information from all persons owning or operating facilities or business premises who are engaged in any phase of energy supply or major energy consumption. The Secretary has delegated to the Administrator of the Energy Information Administration all functions vested in the Secretary by law relating to the gathering, analysis, and dissemination of energy information. EIA has the authority to collect information consistent with its statutory authorities as set forth in Section 205 of the Department of Energy Organization Act, Public Law 95-91 (42 U.S.C. § 7135). It is not clear that these authorities would support mandatory collection of information from hedge funds, traders, and speculators if they were not directly engaged in a phase of energy supply, as terminal operators are.

If the mandatory collection authorities were not applicable, EIA could collect information voluntarily. However, ETA's decisions on what information to collect are subject to numerous other considerations including information quality, practical utility, costs (both to the government and burden on the respondent), and other trade-offs necessary for EIA to present the best overall energy information program. In particular, settlement information and other commodity trading information

would generally fall under the authority of the Commodities Futures Trading Commission.

Question 3e. Can and will EIA provide the information it collects on the physical settlement and storage of oil, gasoline, and other petroleum fuels by hedge funds, traders and other speculators to the Committee?

Answer. As indicated in the previous answers, EIA does not collect this information.

Question 3f. What interagency agreements or protocols does EIA have with the Commodity Futures Trading Commission, the Federal Trade Commission, the Securities and Exchange Commission and the Federal Energy Regulatory Commission to exchange information about, and monitor, energy markets and participants in those markets?

Answer. Section 12 of the Federal Energy Administration Act of 1974 (FEAA), Public Law 93-275 (15 U.S.C. §771), provides that information may be disclosed to other Federal Government departments, agencies, and officials for official use upon request, if done so in a manner designed to preserve the confidentiality of the information. Before disclosing information, EIA establishes an interagency agreement to ensure the information is handled appropriately. EIA currently has interagency agreements with the Commodity Futures Trading Commission and the Federal Energy Regulatory Commission for specific data.

EIA is a Federal statistical agency and our information collection program is designed to fulfill the EIA Administrator's statutory direction to carry out a central, comprehensive, and unified energy data and information program. EIA was not established as an agency for ensuring regulatory compliance or conducting legal investigations. Other agencies, such as those mentioned above, have regulatory and law enforcement functions and their statutes provide the necessary authorities in support of their mandates.

Impact of Increased Ethanol Use: EIA reports that the U.S. is now using roughly 400,000 barrels a day of ethanol in its gasoline supply or roughly 4%, and that number is rising. You also predict that U.S. gasoline consumption will level out at 1% a year. It, therefore, appears that if you adjust for the lower energy content of the ethanol, the growth in U.S. demand would otherwise be flat.

Question 4a. How much of the growth in fuel consumption is due to the lower energy content in ethanol and how is that going to impact U.S. fuel demand as the amount of ethanol in the gasoline supply increases?

Answer. In the *Short Term Energy Outlook,* gasoline volume growth is projected to be 1.2% in 2007. Prior to the spring of 2006, ethanol was substituting for another low-energy product, methyl tertiary butyl ether (MTBE). Thus, the impact on average gasoline energy content from the growth in ethanol use was largely balanced by the decline in MTBE. In 2007, ethanol has been substituting for higher-energy-content gasoline components, resulting in a decline in the average energy content of gasoline. However, our calculations suggest that this decline accounts for only a small part of the projected growth in gasoline demand volumes.

Question 4b. How is EIA going to track real demand for gasoline and adjust historical measures to compensate for the lower fuel value of ethanol blends?

Answer. EIA takes the energy content of fuels into account in both its long-term and short-term forecasts. That is, more volume is needed to cover the same vehicle miles traveled as the energy content of fuels declines. Regarding the data, ETA's petroleum data tables will continue to publish volume information as we always have done. When the industry began using methyl tertiary butyl ether (MTBE) to meet oxygenated gasoline and then RFG requirements, the energy content of gasoline was also affected. EIA published the volumes of MTBE used in gasoline as well as the total volumes of gasoline supplied, stored, and, eventually, consumed. The same information is being provided for ethanol, allowing analysts to represent fuel use in terms of the units most suitable for their purposes.

QUESTIONS FROM SENATOR DOMENICI

Question 1. This past Fall, the U.S. dramatically reduced the amount of sulfur allowed in on-road diesel fuel from 500 parts per million to 15 parts per million. We have heard from several sources, including the International Energy Agency, that refineries that are making ultra-low sulfur diesel (both here and in Europe) are experiencing a reduction in refinery efficiency, and a greater number of equipment failures. These sources claim that the production of ultra-low sulfur fuel will continue to keep available refinery capacity low during the critical summer months. Do you have any information on the extent and exact nature of this problem?

Answer. EIA does not collect data on the reasons for refinery shutdowns. Based on the trade press articles, the refinery problems this year do not appear to be the

result of the ultra-low sulfur (ULSD) diesel program. Looking ahead, however, there are two ULSD factors that could impact refinery availability. The first is that the ULSD desulfurizing units require more frequent changes of catalysts and, thus, more frequent shutdowns than do other downstream units. (For example, desulfurizing units may need to be shut down every 2 years for catalyst change, whereas a fluidized catalytic cracking (FCC) unit might only need to be shut down every 4 years.) The other issue is that once all diesel fuel becomes ULSD, refiners without access to heating oil markets might have to slow or shut down their diesel production when the desulfurizing units are offline.

Question 2. We have heard that due to delivery infrastructure issues, as well as refinery problems, the quoted price for West Texas Intermediate crude oil is low, and is no longer a good "benchmark" for oil prices. One issue that has been cited is a lack of pipeline capacity, caused by an increase in Canadian tar sands production, that is "stranding" oil at the Cushing storage area. What is being done to remedy this problem and get the oil to where it can be refined and delivered to market?

Answer. If the market expects West Texas Intermediate (WTI) crude oil to continue being priced low relative to other crude oils, there should be enough economic incentive to add pipeline capacity to alleviate the surplus of WTI crude oil in the Cushing area. However, some analysts expect WTI prices to move closer to other crude oil prices as the Midwest refineries that use WTI return to full operation. While the issue of increased Canadian crude oil production from tar sands will continue, companies may wait to see what the WTI differentials are before committing to expanding more pipeline capacity or possibly reversing the direction of some of the existing pipeline flows.

Question 3. This March, you prepared a report for Chairman Bingaman on the "Refinery Outages: Description and Potential Impact on Petroleum Product Prices." That report concluded that while refinery outages that impact prices are "relatively rare", they may occur when a particularly "tight market balance" already exists. You cite an example of the California market, where several large unexpected outages drove up prices. This seems to be a result of the fact that California has very strict specifications for fuel that are made by relatively few refiners, hence the large impact of a refinery shutdown. To what extent does the "boutique" fuel problem exacerbate our refinery capacity problems in California and elsewhere?

Answer. California is not the only region experiencing supply difficulties this year, but California does have some unique supply challenges. California mandates very clean-burning gasoline and the region's geographic isolation from other refinery centers can result in outages having a large price impact from time to time.

To elaborate, the California fuel specification is strict enough that not many refiners outside of the West Coast can make the very clean gasoline, which limits alternative available supply sources during outages. The Rocky Mountains isolate the California market from the large refining center on the U.S. Gulf Coast, and the West Coast is a long distance from the import supply sources that can produce the gasoline. Thus, when a refinery unit producing California gasoline goes out, the refiner may not be able to easily "blend around" the problem, which means gasoline production may have to stop for a time. However, reliability of operations seems to be of growing importance in refiners' plans and operations. For example, Chevron stated at its 2007 annual meeting that it had increased its year-over-year utilization rate 5 percentage points in 2006 by more effectively utilizing existing capacity.

All else being equal, having many different fuel types can slow the ability of the supply system to respond to unexpected changes. The difficulty of producing a fuel and the existence of geographic fuel islands (i.e., areas using one fuel type surrounded by regions using a different fuel type) are examples of the factors that can hinder moving fuel to an area experiencing an unexpected shortfall. While the supply system has generally been able to accommodate the fuel-type proliferation so far, it is not clear how well it will be able to accommodate future fuel-type changes.

Question 4. Refinery capacity is a long-term investment, with a decades-long payback period. We have heard concerns that prospects for increased ethanol production could cause some to reconsider investments in increased petroleum refinery capacity. Do you agree this is a potential consequence of the Energy Savings Act (S. 1321)? In your response, please consider the impact of the attached legislation on transportation fuel supply and demand and the need for, and investment in, petroleum refinery capacity.

Answer. As reported in a recent article in the *New York Times* ("Oil Industry Says Biofuel Push May Hurt at the Pump" by Jad Mouawad, published May 24, 2007), some companies are noting that the growing commitment by the U.S. to move away from petroleum products and into renewable fuels is a disincentive for refinery investment. The concerns are not tied specifically to any one piece of legislation, but to the general push towards biofuels and away from petroleum that gained momen-

tum with the Energy Policy Act of 2005. EIA's compilation of company plans for refinery expansion over the next 5 years (taken from trade press and financial analysts' meetings) is showing capacity expansion plans that are about 500 thousand barrels per day smaller in 2007 than the plans discussed early in 2006. The reasons given for the decline include increasing costs of construction (materials and labor) and the growing projections for renewable fuel use.

RESPONSE OF KEVIN LINDEMER TO QUESTION FROM SENATOR BINGAMAN

Question 1. At our hearing on May 15, one witness cautioned that increased strategic inventories held by the U.S. Government would result in lower levels of commercial inventories, and that taking oil off the market to fill strategic reserves could increase oil prices. Do you agree with these statements? Should one expect an increase in the size of the Strategic Petroleum Reserve to result in any net gain in (commercial and strategic) stocks? And, what kind of price increase might be associated with a doubling of the Strategic Petroleum Reserve to 1.5 billion barrels, to be filled at a rate of approximately 100,000 barrels per day, under current market conditions?

Answer. I do not entirely agree with the point that the SPR results in lower commercial inventories. It is true that filling the SPR competes with refiners for crude oil at certain times for certain grades of crude oil and this could have some impact on price.

When the SPR was being filled, commercial inventories were declining. However, this was coincidental rather than cause and effect. Several factors drove inventories lower.

- For much of the 1980s and 1990s, there was surplus oil on the market. OPEC had spare capacity and the market was always concerned that this spare capacity would be brought on line and cause prices to fall. Thus reducing the value of oil held in storage. In fact, this did occur several times over this period.
- During the 1980s and 1990s, the industry was trying to drive down costs to restore profitability. A major source of cost savings was through the reduction of inventory. This freed up working capital to be deployed to other uses. Companies learned to operate with far less inventory (and working capital), thus improving or maintaining profitability in a poor margin/price environment.
- Low industry profitability resulted in several major mergers and alliances in the US oil industry. When companies merged or acquired another, the level of inventory needed to operate the combined company was usually less than the companies operating separately. This was especially true where the companies had operations in the same geographic areas.
- The phenomenon of falling inventories while the SPR was being filled was not just a US issue. It occurred worldwide. The global industry was reacting to the factors described above in the same way the US industry reacted, by reducing operating inventories.
- Reduced levels of inventory are not unique to the oil industry. Many other industries have moved to lower stock levels (just in time inventory) to improve cash management, reduce costs and improve profits.
- Further, SPR releases have been so infrequent and the circumstances of the release have not been predictable in advance. Therefore, the industry could not make the decision that they could rely on the SPR for inventory. And, not all refineries in the US have timely access to the SPR.

Whether or not there is a measurable price impact will depend on:

- Amount of oil production capacity available in the world. During the 1980s when most of the oil was put into the SPR, there was significant surplus crude oil production capacity in OPEC. Today there is not.
- The quality of the crude oil. Today there is a shortage of light/sweet crude oil and a relative abundance of heavy/sour crude oil. If the future oil put into the SPR is heavy/sour, there is unlikely to be much of a measurable price impact. On the other hand, if light/sweet crude oil is put into the future reserve, it could push these grades of crude oil higher and have a disproportionate impact on consumer prices, much like what is happening now with gasoline prices as a result of the shortage of light/sweet crude. The current shortage is due to declining production in the North Sea and shut-in production in Nigeria.
- The timing of the fill. The longer the time used to add the additional volumes, the less the risk of measurable price impacts.
- OPEC production policies. If, at any point in time, OPEC members are being disciplined about quote adherence then additional demand could potentially

cause an increase in price. On the other hand at periods when OPEC is undisciplined (more rare over recent years due to much lower spare capacity) and prices are soft then additional demand may simply slow a price decline, but not cause a rise.
- In any event, although in a tight market any additional demand in theory contributes to a higher price, a rate of 0.1 million b/d is still well within the margin of error of estimates of both demand and supply (even for history, let along for the future). Hence it would be difficult to argue that incremental demand of 0.1 million b/d, in isolation, could be directly associated with any change in price or to quantify its impact.

RESPONSES OF KEVIN LINDEMER TO QUESTIONS FROM SENATOR DOMENICI

Question 2. This past fall, the U.S. dramatically reduced the amount of sulfur allowed in on-road diesel fuel from 500 parts per million to 15 parts per million. We have heard from several sources, including the International Energy Agency, that refineries that are making ultra-low sulfur diesel (both here and in Europe) are experiencing a reduction in refinery efficiency, and a greater number of equipment failures. These sources claim that the production of ultra-low sulfur fuel will continue to keep available refinery capacity low during the critical summer months. Do you have any information on the extent and exact nature of this problem?

Answer. I do not have information that can confirm these reports. However, ULSD is unique compared to previous specifications. The level of sulfur in diesel fuel is measured at the point of delivery. This leaves very little margin of error in the manufacturing and distribution process because other streams in the refinery and distribution system have higher sulfur levels and there is a risk that diesel fuel can pick up some of this sulfur and not meet the specification at the point of measurement. As a result, refiners must manufacture a diesel fuel that is lower in sulfur content than the delivered product (15 ppm specification compared to a level leaving the refinery of about 7 ppm) which essentially means the diesel fuel production process needs more segregated infrastructure in the refinery. The very low sulfur level results in an increased probability of the production of off-spec product which needs to be reprocessed, thus reducing the effective capacity of the refinery.

On the other hand, while it may be true that the added complexity of producing the new diesel specification product is having an impact on refinery operations, it is also likely that:

- The issues are associated with a breaking in period with the producing new specification and that more operating experience will increase production and operational reliability.
- Problems being reported are magnified as a result of the overall tightness of the market.

It should be noted that the ultra-low sulfur diesel fuel specification does reduce the capacity of the pipeline systems. The addition of ULSD added one more product to an already stressed pipeline system. Each time a new product is added, capacity decreases due to the volume of capacity required for pipeline interface between the different products being shipped.

Question 3. We have heard that due to delivery infrastructure issues, as well as refinery problems, the quoted price for West Texas Intermediate Crude oil is low, and is no longer a good "benchmark" for oil prices. One issue that has been cited is a lack of pipeline capacity, caused by an increase in Canadian tar sands production, that is "stranding" oil at the Cushing storage area. What is being done to remedy this problem and get the oil to where it can be refined and delivered to market?

Answer. The US pipeline system is not experiencing an inability to deliver crude oil. WTI prices are being influenced by a number of factors, Canadian crude oil shipments being one of them. Another is the reduced throughput in some key refineries that run WTI due to operating disruptions. Their reduced demand is also causing WTI stocks to increase and the price of WTI to fall relative to other grades of crude oil. Going forward there are a number of things that should be expected to happen as the market and the logistics systems adjust to the changing conditions.

- Refiners that run WTI will come back on line, thus increasing demand and the relative price of WTI.
- The pipeline system supplying the Cushing market has undergone many changes over the years. As late as the 1970s, the pipeline systems flowed from the West Texas/mid-continent markets to the Gulf Coast refineries. As production in these regions declined, the pipelines were, either reversed to carry imported crude oil from the Gulf Coast to the mid-continent or the pipelines were converted to other uses such as natural gas and refined products. Today, with

rising Canadian production coming in to the US as far south as Houston and volumes expected to rise dramatically over the next decade, it should be expected that pipelines will once again be re-purposed to carry the rising volumes further south. The current WTI situation may be just the market signal needed to get that process started.

- Additional pipeline capacity to deliver Canadian crude oil to the US will be coming on line over the next few years as volumes of oils sands production increases. As this capacity enters the market, it will force changes to the flow of crude oil and refined products. Current flows are generally south to north. Over the next few years, there will be pressure to begin reducing the volumes moving north from the Gulf Coast and increase volumes moving south to the Gulf Coast. This will require pipeline reversals. It is not clear that new pipelines will be required.
- There are already reportedly proposals to redirect pipelines and to add up to increase storage capacity at Cushing by nearly 70 percent.

Question 4. In your testimony, you referenced economic and regulatory factors that discourage investment in new refinery capacity. Can you go into greater detail, particularly with respect to regulatory issues, regarding the obstacles to construction of new petroleum refinery capacity, both with respect to construction of "greenfield" facilities and expansion of existing plants?

Answer. One of the most significant issues that may have resulted in reduced investment in new refining capacity in the 1990s was the capital needed to upgrade refineries to comply with new environmental and produce quality regulations. This had the effect of diverting refinery investment capital in a poor profit environment from capacity additions to regulatory compliance. It should be noted, however, that during much of this period, refining margins were poor and refiners did have a disincentive to invest in large projects. Low cost expansions were favored.

However, the issue of 'greenfield' refinery construction is being over-emphasized. It is and has been lower cost to expand existing refineries than build new ones. This is true for refining as well as most other commodity manufacturing industries. This has been the case for refining since at least the 1940s with a brief interruption in the 1970s during price controls. During the 1970s, refinery construction was encouraged by uneconomic government regulation and incentives. Once the regulations and price controls were removed, nearly all of the refineries built in the 1970s were closed quickly and the industry resumed the trend of low cost expansions and closure of high cost facilities. The number of refineries in the United States has declined from 336 in 1949 to 149 today. The rate of decline was very steady. Over this period, refinery capacity increased every year with the exception of the early 1980s when the industry closed the uneconomic capacity that was added in the 1970s.

Refiners are now investing in new capacity in existing refineries. Some of these investments are significant and designed to run heavy/sour crude oils which are in abundant supply, especially from Canada. Higher margins over the last couple of years is resulting in more investment in capacity expansions. It is unlikely the refining industry will need new refineries. Expansion of existing facilities, coupled with refined product imports, should be expected to meet market requirements. This has been the case for most of the last 60 years and is characteristic of commodity manufacturing industries.

Refined product imports increase with increasing US demand, for two major reasons:

- Off-shore refiners located in logistically-advantaged places such as Canada and the Caribbean also expand to serve their US market.
- The US market is more attractive to certain foreign suppliers than their other market options. For example, in Europe, refineries produce more gasoline than is needed in the EU, even though these refineries run to maximize diesel fuel production. The excess gasoline is a low cost by-product that must be sold in other markets.

Question 5. Refinery capacity is a long-term investment, with a decades-long payback period. We have heard concerns that prospects for increased ethanol production could cause some to reconsider investments in increased petroleum refinery capacity. Do you agree this is a potential consequence of the Energy Savings Act (S. 1321), and do you have any suggestions for easing the transition to increased use of ethanol? In your response, please consider the impact of the attached legislation on transportation fuel supply and demand and the need for, and investment in, petroleum refinery capacity.

Answer. The policies in place or being considered are inherently at odds with the perceived need for more US refining capacity. This is clearly a risk for future refin-

ery investment. At this time, the industry is getting short-term market signals that new capacity is needed and longer-term policy signals that new capacity may not have a market before the company pays for the investment. These concerns are being driven by:

- Rising risk of higher volumes of biofuels which will compete with refinery production
- Higher fuel efficiency standards will weaken demand growth. Possibly to rate below the annual rate of underlying refinery capacity creep. This would reduce the need for new capacity.
    i. One possible way for automakers to meet the new efficiency standards would be to increase the number of diesel light duty vehicles in the fleet much like what is being done in Europe. If this develops, refiners would shift production from gasoline to diesel fuel, thus directionally reducing the surplus of gasoline capacity that would otherwise develop.
- Risk of climate change regulations could further reduce the demand for refinery production and/or increase the cost of refining in the future. This could reduce the expected return on investment.

Any solution to this dilemma should include input, cooperation and risk ownership of all of the stakeholders; government, oil industry/refiners, biofuels producers, etc.

RESPONSE OF PAUL SANKEY TO QUESTION FROM SENATOR BINGAMAN

Question 1. In your testimony on May 15, you cautioned that increased strategic inventories held by the U.S. Government would result in lower levels of commercial inventories, and that taking oil off the market to fill strategic reserves could increase oil prices. Should one expect an increase in the size of the Strategic Petroleum Reserve to result in any net gain in (commercial and strategic) stocks? And, what kind of price increase might be associated with a doubling of the Strategic Petroleum Reserve to 1.5 billion barrels, to be filled at a rate of approximately 100,000 barrels per day, under current market conditions?

Answer. It is difficult to know to what extent the SPR contributed to the reduction in oil inventory holdings that has occurred over the past 20 years, but it may have had some impact. The biggest single reason for the reduction has been industry consolidation, whereby two companies merging into one can effectively hold half the inventory to protect themselves from an outage. This is essentially an efficiency gain from consolidation.

That said, the market is well aware of the SPR and its size and understands that, in essence, the US government is the supplier of last resort. In the case of outages, the government has quickly stepped in to supply the companies that need supply. From the perspective of business, there is less need to pay for crude oil storage when the US government is already doing that. Therefore companies on balance will have been more willing to hold less inventory, that would be highly risky were it not for the SPR safety net.

Interestingly the oil market is now incentivising stock building, because future crude prices are higher than current crude prices ("contango") on the NYMEX, which incentivises storage of oil (a barrel produced today is worth more if you sell it at 2009 prices than today's prices, and the spread is higher than the cost of storage in the interim). Naturally, the companies are responding, with tanks very full, and more physical tanks being built across the country. This is an excellent example of how the market will tend solve problems that are priced by the market.

Our key concern is addressed the second part of the question: the government is essentially competing with the companies for scarce oil, in order to build the SPR. There is a false way and a correct way to look at this. The false argument states that, in a global oil market of 86 million barrels per day, the US government acquisition of 100 thousand barrels a day is not impactful. The correct way to look at it is to understand that the oil market, and particularly refining, sets price at the margin. The entire US oil market only grows at around 200 thousand barrels per day (~1%). Effectively the US government buying 100 thousand barrel per day increases oil demand growth in the US by 50%. Hence we support the government building oil inventory by alternate domestically supplied means that encourage research and development and the practical proof of new technology, such as coal to liquids.

RESPONSES OF PAUL SANKEY TO QUESTIONS FROM SENATOR DOMENICI

Question 2. This past Fall, the U.S. dramatically reduced the amount of sulfur allowed in on-road diesel fuel from 500 parts per million to 15 parts per million. We have heard from several sources, including the International Energy Agency, that refineries that are making ultra-low sulfur diesel (both here and in Europe) are experiencing a reduction in refinery efficiency, and a greater number of equipment failures. These sources claim that the production of ultra-low sulfur fuel will continue to keep available refinery capacity low during the critical summer months. Do you have any information on the extent and exact nature of this problem?

Answer. While details and statistics are scarce, our contacts in industry have universally agreed that the switch to lower sulfur diesel has reduced effective refinery capacity and diesel production. There are two issues present:

- In order to meet the 15 ppm ULSD standard, refiners need to further process diesel fuel with additional machinery (hydrotreaters). Like all machinery, these are prone to break. However, with the new ULSD specification, essentially there is no alternate way to produce diesel (of any kind) if any part of the production chain breaks. In the past, a refiner could change blends of products, and work around the problem, however, these lower quality products are not permitted/ have no demand now, leaving a refiner with no choice but to cut production until all units are back in service.
- Infrastructure is also a problem. ULSD is extremely difficult to transport given that it is relatively easy for product to fail specification based simply on contamination from a pipeline. This has had the effect of limiting the mobility of ULSD supplies. Additionally, pipeline operators cannot move both types of diesel—off road higher sulphur, and ULSD—and guarantee on-specification ULSD to their customers, in turn, they have simply stopped shipping off-road diesel in some cases, further reducing diesel supplies. This has had the perverse effect of increasing demand for ULSD with users that are not required to use it, but have no alternative fuel supply.

Question 3. We have heard that due to delivery infrastructure issues, as well as refinery problems, the quoted price for West Texas Intermediate Crude oil is low, and is no longer a good "benchmark" for oil prices. One issue that has been cited is a lack of pipeline capacity, caused by an increase in Canadian tar sands production, that is "stranding" oil at the Cushing storage area. What is being done to remedy this problem and get the oil to where it can be refined and delivered to market?

Answer. There is both a short-term and long-term issue here. This year, due to refinery problems in the Cushing area (specifically, Valero's McKee refiner), more physical crude oil has built up in Cushing than is typical, in turn hurting the price (oversupply) for WTI. While this phenomenon does call into question the appropriateness of WTI as a benchmark, it has limited impact on most types of crude oil prices. What it has done is cause differentials (difference between WTI and other crude oils) to be greater than normal. Importantly, we do not believe it has had any impact on the availability of crude oil to refineries.

Longer-term, the flow of Canadian crude into the crude oil hub of Cushing will not be an issue. Pipeline construction is constant in the area and planning is well under way for future capacity to take Canadian crudes into and out of Cushing, as well as other crude oil hubs like Patoka, Illinois. Latest news is that pipelines into Cushing from the Gulf may be reversed, which would alleviate the problem.

If WTI becomes an irrelevant benchmark, which is increasingly the case, then the futures exchange, NYMEX, can simply change the definition. This happened in the past five years with Brent crude.

RESPONSE OF PAUL SANKEY TO QUESTION FROM SENATOR MARTINEZ

Question 4. Mr. Sankey you mentioned in your testimony that the limitations of the U.S. oil refinery industry is a key factor that keeps gas prices high. In your opinion, what impact does the U.S. ethanol tariff have on gasoline prices? Are there any other policy and regulatory standards that are contributing factors?

Answer. Any tax or tariff on a gasoline additive or substitute, such as ethanol, inherently increases the price of gasoline at the pump. We would emphasize though, that the very generous government subsidization of ethanol (through farm subsidies as well as the $0.51/gallon credit) has the total effect of decreasing the overall price of gasoline at the pump. Arguably, this is not what is needed, at least for the greater good (politics of high gas prices notwithstanding).

Ethanol is an expensive and inefficient substitute for gasoline. As stated, we would prefer to see ethanol supported via higher gasoline taxes (raising the relative price of refined gasoline) in order to make ethanol price competitive. This would

have the desired effect of discouraging American gasoline consumption, ultimately extremely beneficial for both "energy independence" and the environment/global warming. But then we don't have to get re-elected, we just have the simple job of helping people make money.

RESPONSES OF GEOFF SUNDSTROM TO QUESTIONS FROM SENATOR DOMENICI

Question 1. This past fall, the U.S. dramatically reduced the amount of sulfur allowed in on-road diesel fuel from 500 parts per million to 15 parts per million. We have heard from several sources, including the International Energy Agency, that refineries that are making ultra-low sulfur diesel (both here and in Europe) are experiencing a reduction in refinery efficiency, and a greater number of equipment failures. These sources claim that the production of ultra-low sulfur fuel will continue to keep available refinery capacity low during the critical summer months. Do you have any information on the extent and exact nature of this problem?

Answer. We do not. Because diesel is primarily a commercial fuel in the US, AAA does not regularly comment on its price movements.

Question 2. We have heard that due to delivery infrastructure issues, as well as refinery problems, the quoted price for West Texas Intermediate Crude oil is low, and is no longer a good "benchmark" for oil prices. One issue that has been cited is a lack of pipeline capacity, caused by an increase in Canadian tar sands production, that is "stranding" oil at the Cushing storage area. What is being done to remedy this problem and get the oil to where it can be refined and delivered to market?

Answer. AAA understands that there are various grades of oil just as there are various octane levels for gasoline. The compositions of both affect their price. We choose to benchmark against NYMEX-traded WTI crude because it is the benchmark price reported by all of the major news organizations, and does a pretty good job of reflecting general oil price trends. If the commodity-trading community chooses to begin referring to a different benchmark for crude, AAA will mostly likely follow suit. The same editorial standard is true of gasoline in that we now quote wholesale prices for RBOB gasoline rather than conventional gasoline, just as the trading community and financial news organizations have done.

AAA is not in a position to judge the effect of pipeline capacity on fuel deliveries and production.

Question 3. This March, EIA a report for Chairman Bingaman on the "Refinery Outages: Description and Potential Impact on Petroleum Product Prices." That report concluded that while refinery outages that impact prices are "relatively rare", they may occur when a particularly "tight market balance" already exists. The report cites an example of the California market, where several large unexpected outages drove up prices. This seems to be a result of the fact that California has very strict specifications for fuel that are made by relatively few refiners, hence the large impact of a refinery shutdown. To what extent does the "boutique" fuel problem exacerbate our refinery capacity problems in California and elsewhere?

Answer. AAA believes boutique fuel specifications and ethanol blending requirements have reduced the capacity of refiners somewhat and thus both are contributing factors to gas price increases this decade. This is because much of the refining industry must now incur some downtime each Spring and Fall as they switch from the production of one fuel to another, and because the phase-out of MTBE and the mandated use of ethanol have created both short-term and long-term cost and logistical issues for the industry as a whole. AAA is not in a position to evaluate the overall price effects of these issues on a state-by-state basis or even a national basis, but the geographical isolation of the west coast of the United States from the rest of the nation's refining and distribution system is a barrier to lower prices in that region. In general, AAA favors gasoline specifications that allow the use of as few fuel blends as possible over as wide a geographical area as possible, while still meeting our air quality goals. We think this is the best way to facilitate increased competition among fuel sellers and suppliers nationwide, while helping to reduce spot-shortages of fuel and the price volatility associated with these situations.

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